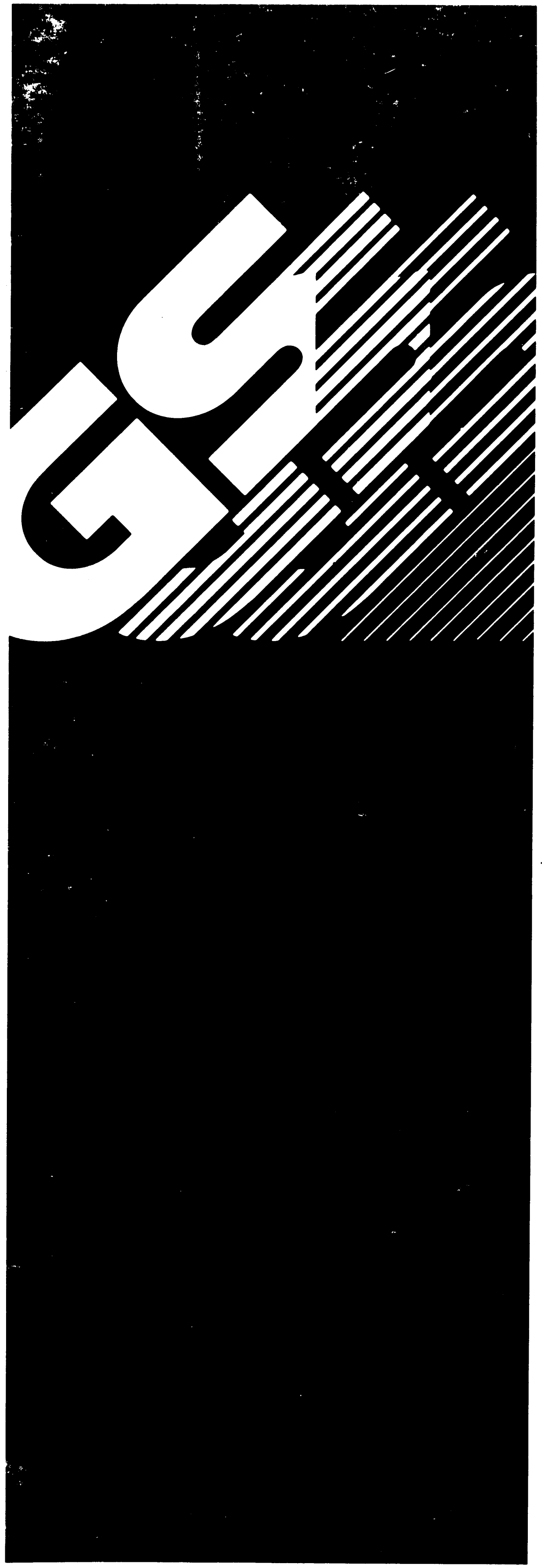


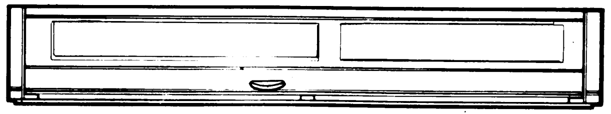
GoldStar

VHS PAL VIDEO CASSETTE RECORDER

SERVICE MANUAL

CATION

BEFORE SERVICING THE CHASSIS, READ THE"SAFETY PRECAUTIONS", IN THIS MANUAL



MODEL:R-C400W

GoldStar

INTRODUCTION

This service manual provides a variety of service information. It contains the mechanical structure of the Video Cassette Recorder(VCR) together with mechanical adjustments and the electronic circuits in schematic form. This VCR was manufactured and assembled under our strict quality control standards and meets or exceeds industry specifications and standards.

TOTAL CONTENTS

SECTION 1 .... SUMMARY
SECTION 2 .... CABINET & MAIN FRAME
SECTION 3 .... ELECTRICAL
SECTION 4 .... MECHANISM
SECTION 5 .... REPLACEMENT PARTS LIST

SECTION 1

SUMMARY

CONTENTS

IMPORTANT SAFETY PRECAUTIONS 1-3
- Precautions during Servicing

SAFETY CHECK AFTER SERVICING 1-4
- Insulation resistance test
- Dielectric strength test
- Clearance distance
- Leakage current test

FEATURES 1-5
SPECIFICATIONS 1-5
LOCATION OF CUSTOMER CONTROLS 1-6

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, the products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

• Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use Specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistor

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.(Fig. 1)

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10-15Kg of force in any direction will not loosen it.(Fig. 2)

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the parts specified. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

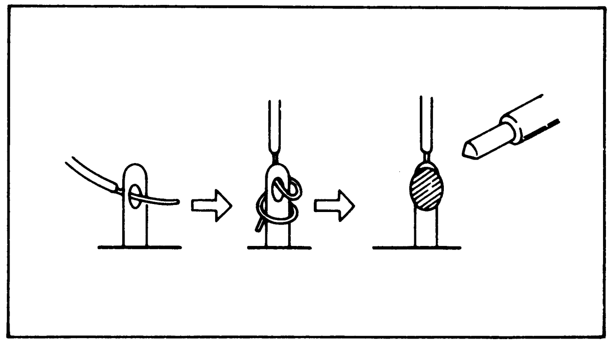


Fig. 1

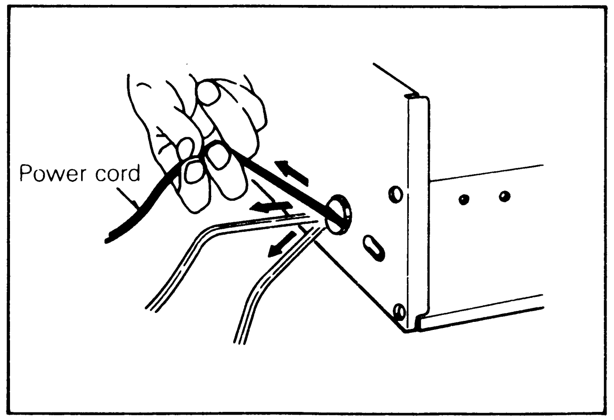


Fig. 2

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

•. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

•. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set(RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

•. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

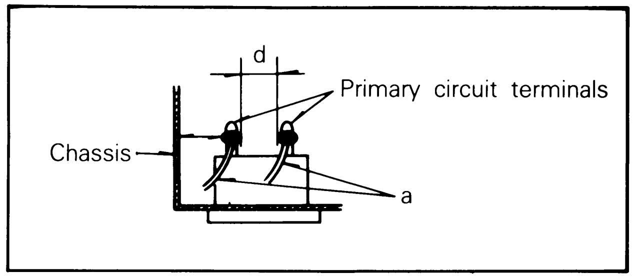


Fig. 3

Table 1:Ratings for selected areas

AC Line Voltage	Region	Insulation Reslstance	Dielectric Strength	Clearance Distance(d),(d)
*110 to 130 V 200 to 240 V	Europe Australia	≧10 MΩ/500 V DC	4kV 1 minute	≧6mm(d) ≧8mm(d) (a Power cord)

*Class II model only.

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

•. Leakage Current test

Confirm specified or lower leakage current between B(earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.)

Measuring Method: (Power ON)
Insert load Z between B(earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

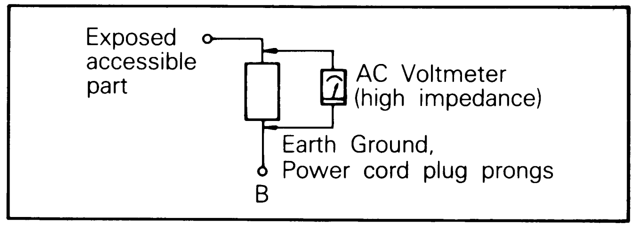

Exposed accessible part
AC Voltmeter (high impedance)
Earth Ground, Power cord plug prongs
B

Fig. 4

Table 2:Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current(i)	Earth Ground (B) to:
100 to 130 V	Europe	2kΩ	i≦0.7m A peak i≦2m A dc	Antenna earth terminals
200 to 240 V	Australia	50kΩ	i≦0.7m A peak i≦2m A dc	Other terminals

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

FEATURES

- VHS Index Search System(VISS)
- HQ, High Quality picture enhancement system improves image sharpness and detail
- Double-Azimuth 4 head system
- 8 event/1 year programmable timer with every recording
- QSR, Quick Set Recording with stand-by (up to 9 hours)
- Programmable channel memory with voltage frequency synthesized tuner(up to 40 positions)
- Full-Function infrared remote control (OSD programming+LCD programming)
- Auto Power and Play Function
- Automatic rewind
- Freeze function(pause), Frame advance
- Distinguished Editing functions
- Tape Remaining time display function
- Quick Start Function
- Real Time Counter
- Digital Auto Tracking System
- Jet Search
- FR Search Function
- PAL B/G, SECAM D/K Dual System
- Auto Head Cleaner

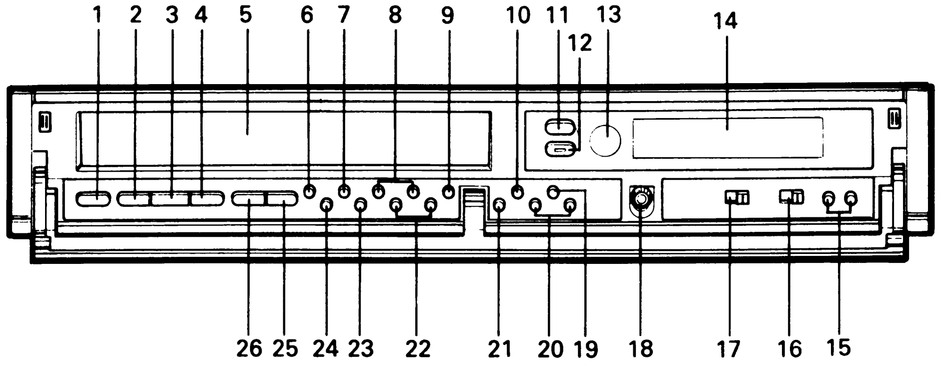
SPECIFICATIONS

General :	
Power Source :	AC220V±10%, 50Hz
Power Consumption :	Approx. 33Watts
Video Recording System :	Double azimuth 2 heads, helical scaning system
Tape Speed :	23.39mm/sec(SP mode)
	11.69mm/sec(LP mode)
Tape Format :	Tape Width 1/2"(12.7mm high density tape VHS)
Maximum Recording Time :	4.2 hours at SP/8.4 hours at LP mode((with E-260 tape)
FF/Rewind Time :	Less than 300secs(with E-180 cassette)
Dimensions(WXHXD) :	16.9"X3.2"X13.4"mm(430X82X340mm)
Weight :	About 15.45lbs(7.0Kg)
Operating Temperature :	41°F-95°F(5℃-35℃)
Operating Humidity :	35%-80%
Timer :	24 hours display type
Video :	
Television System :	CCIR standard(625lines, 50 fields)
	PAL/SECAM Colour signal
Recording Format :	PAL/MESECAM(0st)
RF Reception :	PAL, SECAM(B/G, D/K)
RF OUT :	PAL, SECAM(G, K)
Input Level ;	VIDEO IN(SCART-PIN type)
	1.0Vp-p 75 ohm unbalanced
Output Level :	VIDEO OUT(SCART-PIN type)
	1.0Vp-p 75 ohm unbalanced
Signal to Noise Ratio :	More than 43dB
RF Modulator :	UHF Channels 32~40(Adjustable)
Audio :	
Input Level :	AUDIO IN(SCART-PIN type)
	-8dBm more than 50Kohm
Output Level :	AUDIO OUT(SCART-PIN type)
	-3dBm Less than 1Kohm
Audio Track :	Monotrack type
Audio Frequency Response :	100Hz-10KHz($^{+3}_{-5}$)
Signal to Noise Ratio :	More than 40dB

* Designs and specifications are subject to change without notice.

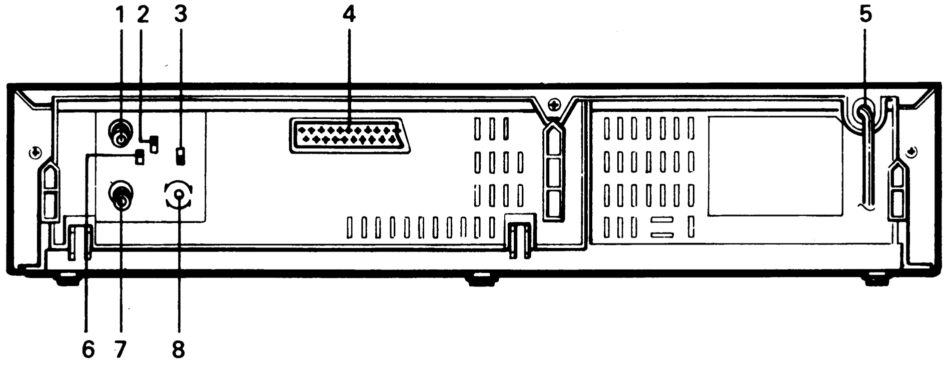
LOCATION OF CUSTOMER CONTROLS

FRONT



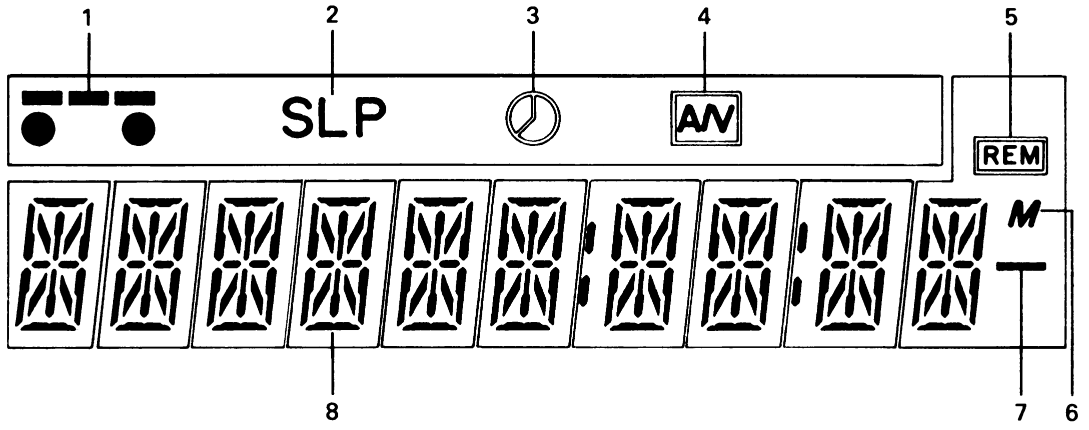
1. STOP BUTTON
2. REWIND/REVIEW VUTTONS
3. PLAY(X2) BUTTON
4. FAST FORWARD/CUE BUTTON
5. CASSETTE COMPARTMENT
6. NOR/PRE BUTTON
7. AUTO SEARCH BUTTON
8. MFT(− / +) BUTTONS
9. TU/AV SELECT BUTTON
10. CLOCK/TAPE COUNTER/TAPE REMAING TIME SELECT BUTTON
11. EJECT BUTTON
12. OPERATE BUTTON AND INDICATOR
13. REMOTE SENSOR WINDOW
14. MULTI-FUNCTION DISPLAY
15. CHANNEL PROGRAMME SELECTORS(− / +)
16. TAPE SELECT SWITCH
17. EDIT ON/ON SWITCH
18. SHARPNESS CONTROL
19. TAPE COUNTER RESET BUTTON
20. MANUAL TRACKING CONTROL BUTTONS(− / +)
21. TAPE SPEED MODE SELECT BUTTON(SP/LP)
22. CHECK(− / +)
23. SKIP BUTTON
24. MEMO BUTTON
25. PAUSE/STILL BUTTON
26. RECORD BUTTON

REAR



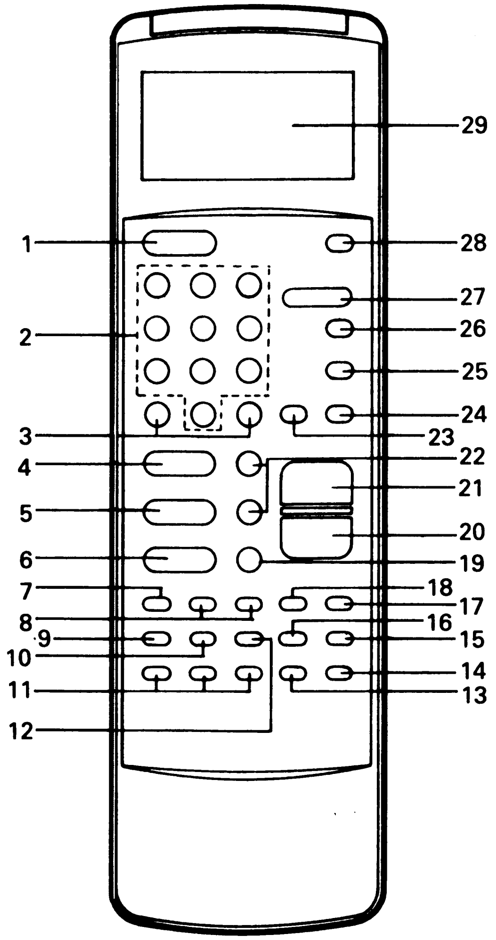
1. AERIAL INPUT
2. SYSTEM SELECTOR SWITCH (PAL B/G, SECAM D/K)
3. TPSG ON/OFF SWITCH
4. EURO-AV SOCKET
5. MAINS LEAD
6. ATTENUATION(ATT.) SWITCH
7. RF OUTPUT
8. RF CHANNEL CONTROL

MULTI-FUNCTION DISPLAY



1. CASSETTE-IN INDICATOR
2. TAPE SPEED INDICATOR(SP/LP)
3. TIMER INDICATOR
4. LINE INDICATOR
5. TAPE REMAINING INDICATOR
6. MEMORY INDICATOR
7. MINUS INDICATOR
8. FUNCTION INDICATORS

REMOTE CONTROL



1. OPERATE BUTTON
2. NUMBER BUTTONS "0" THROUGH "9"
3. CHANNEL PROGRAMME BUTTONS
4. FAST FORWARD/CUE BUTTON
5. REWIND/REVIEW BUTTON
6. PAUSE/STILL BUTTON
7. AUTO TRACKING BUTTON
8. V.LOCK/TRACKING(− / +) BUTTONS
9. VISS BUTTON
10. MARK BUTTON
11. SLOW(− / +) BUTTONS
12. EARSE BUTTON
13. QSR START BUTTON
14. QSR LENGTH BUTTON
15. CLOCK/TAPE COUNTER MEMORY/TAPE REMAINING SELECT BUTTON
16. TAPE COUNTER RESET BUTTON
17. TAPE SPEED MODE SELECT BUTTON(SP/LP)
18. TU/AV SELECTOR
19. FRAME ADVANCE BUTTON
20. STOP BUTTON
21. PLAY(X2) BUTTON
22. RECORD BUTTON
23. MENU BUTTON
24. TRANS BUTTON
25. MONITOR/CLEAR BUTTON
26. DISPLAY/ENTER BUTTON
27. PROGRAMMING BUTTON
28. EJECT BUTTON
29. LCD PANEL

SECTION 2

CABINET & MAIN FRAME

CONTENTS

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2. Front Panel 2-3

CIRCUIT BOARD DISASSEMBLY 2-3

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2. Timer/Key Function Circuit Board 2-4
3. Main Circuit Board(I) 2-4
4. Pre-Amp Circuit Board 2-4
5. Power Circuit Board 2-4

EXPLODED VIEWS 2-5

1. Cabinet & Main Frame Section 2-5
2. Packing Accessory Section 2-6
3. Remote Control Section 2-6

CABINET DISASSEMBLY

1. Top Case, Bottom Cover

A. Remove 5 screws(A).(See Fig. 2-2)
B. Hold the back of Top Case and lift it up slightly backward to remove it.
C. Remove 9 screws(B) to remove the Bottom Cover. (See Fig. 2-2)

2. Front Panel

A. Remove the Top Cover.(See Fig. 2-2)
B. Remove the Bottom Cover.(See Fig. 2-2)
C. Remove 1 screws(C) on the top of the Front Panel.
D. Remove the stoppers on the top of the Front Panel.
E. Remove the stoppers on the bottom of the Front Panel.

*** Caution**

When reassemble the Front Panel, assemble it in condition of inserting the Door Cassette inside, as shown in Fig. 2-1.

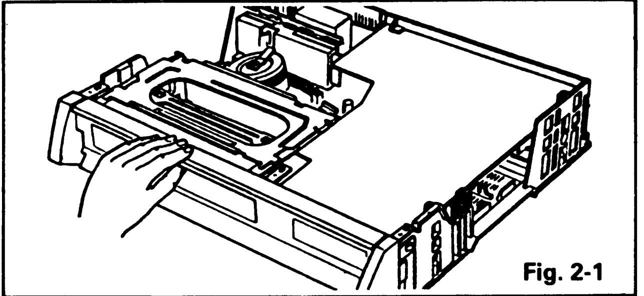


Fig. 2-1

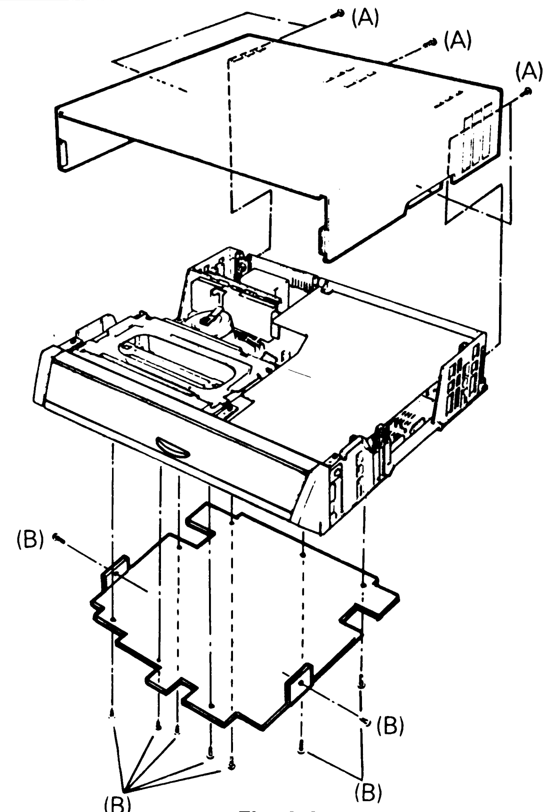


Fig. 2-2

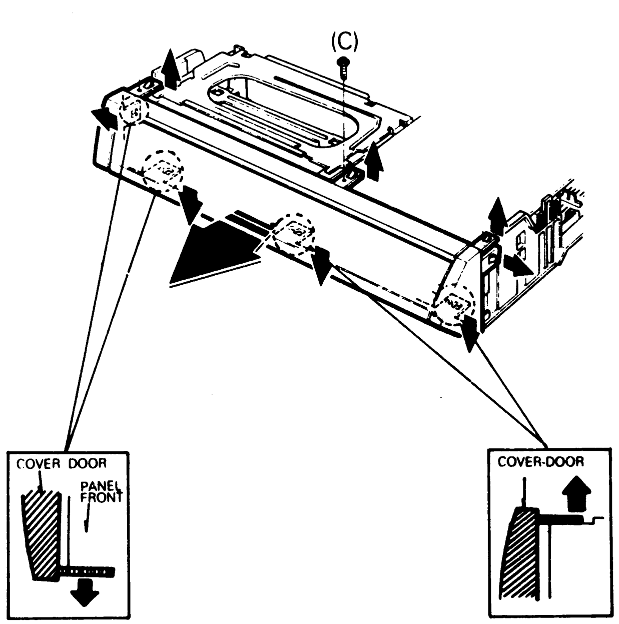

(C)
COVER DOOR
PANEL FRONT
COVER-DOOR

Fig. 2-3

CIRCUIT BOARD DISASSEMBLY

1. Circuit Board Arrangement

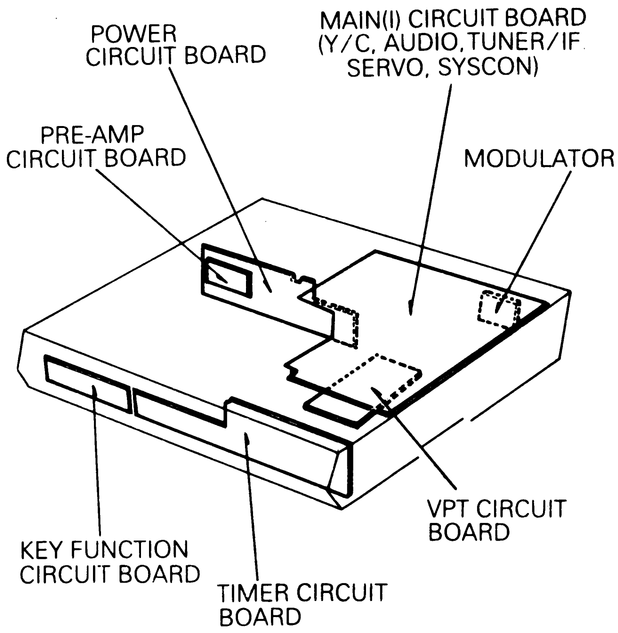

POWER CIRCUIT BOARD
MAIN(I) CIRCUIT BOARD (Y/C, AUDIO, TUNER/IF SERVO, SYSCON)
PRE-AMP CIRCUIT BOARD
MODULATOR
KEY FUNCTION CIRCUIT BOARD
TIMER CIRCUIT BOARD
VPT CIRCUIT BOARD

Fig. 2-4

2. Timer/Key Function Circuit Board

A. Pull the P.C.Board toward you while pressing 5 stoppers in the direction of the arrows to disengage, and remove the P.C.Board. (See Fig. 2-5)
B. Remove the connector for complete removal.

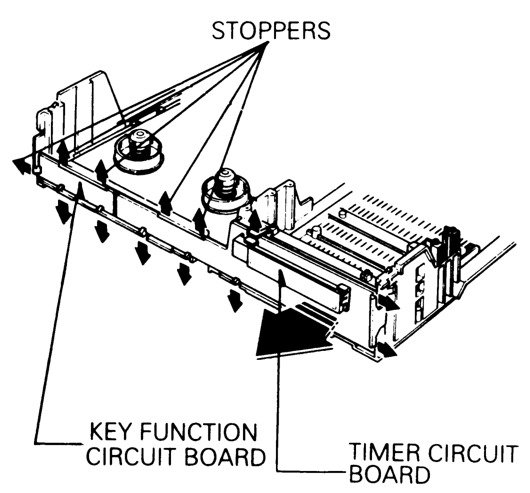

STOPPERS
KEY FUNCTION CIRCUIT BOARD
TIMER CIRCUIT BOARD

Fig. 2-5

3. Main Circuit Board(I)

A. Remove 4 screws(D).
B. Press the stopper in the direction of the arrow to disengage and lift the rear part up and pull the P.C.Board backward.
C. Remove the connector for complet removal.

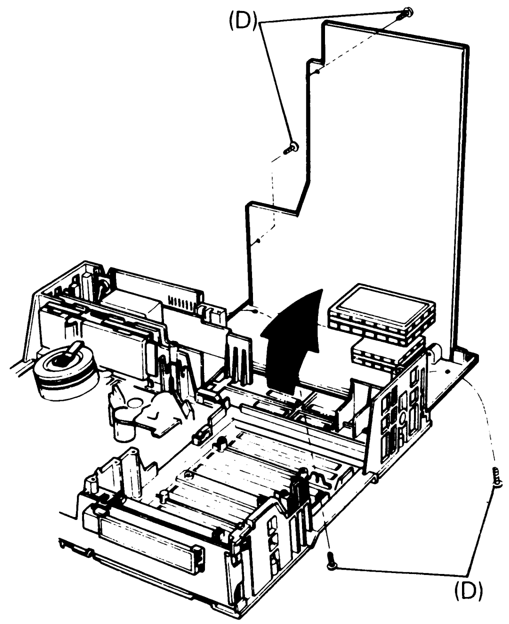


Fig. 2-6

4. Pre-Amp Circuit Board

A. Remove 3 screws(E).
B. Remove Pre-Amp Package from Main frame.
C. Remove bracket Pre-Amp from Pre-Amp package.
D. Remove Pre-Amp Circuit Board from Pre-Amp package.

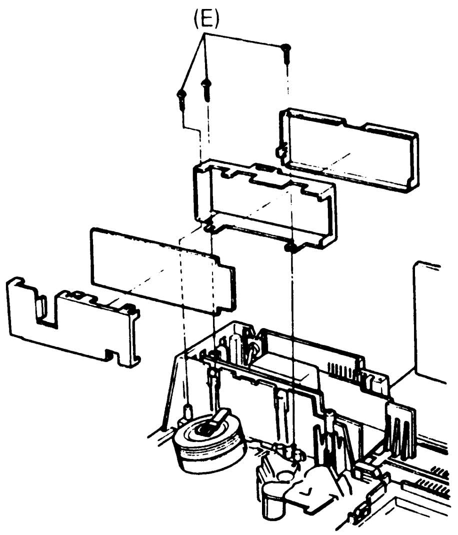


Fig. 2-7

5. Power Circuit Board

A. Remove Main(I) P.C.Board.(See Fig. 2-6)
B. Remove 4 screws(F).

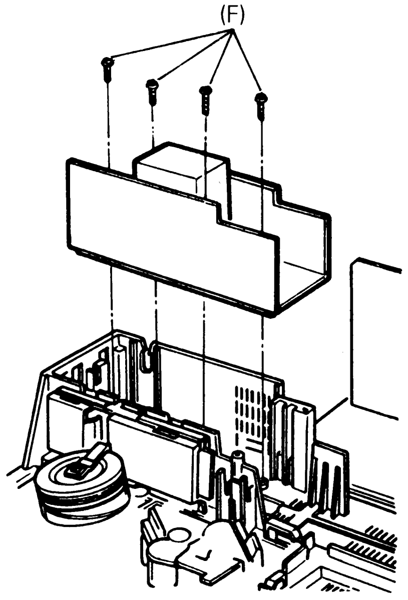
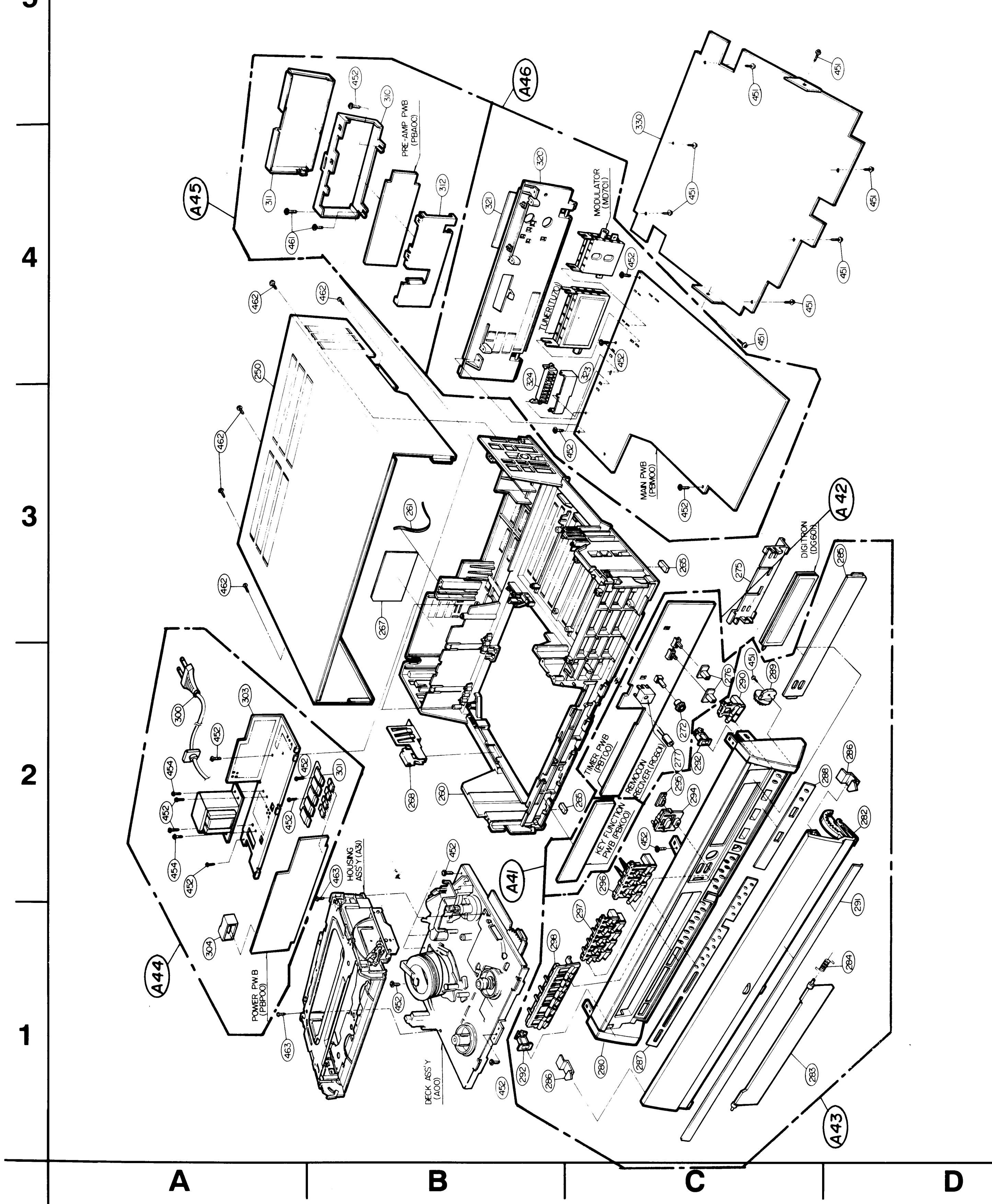


Fig. 2-8

EXPLODED VIEWS

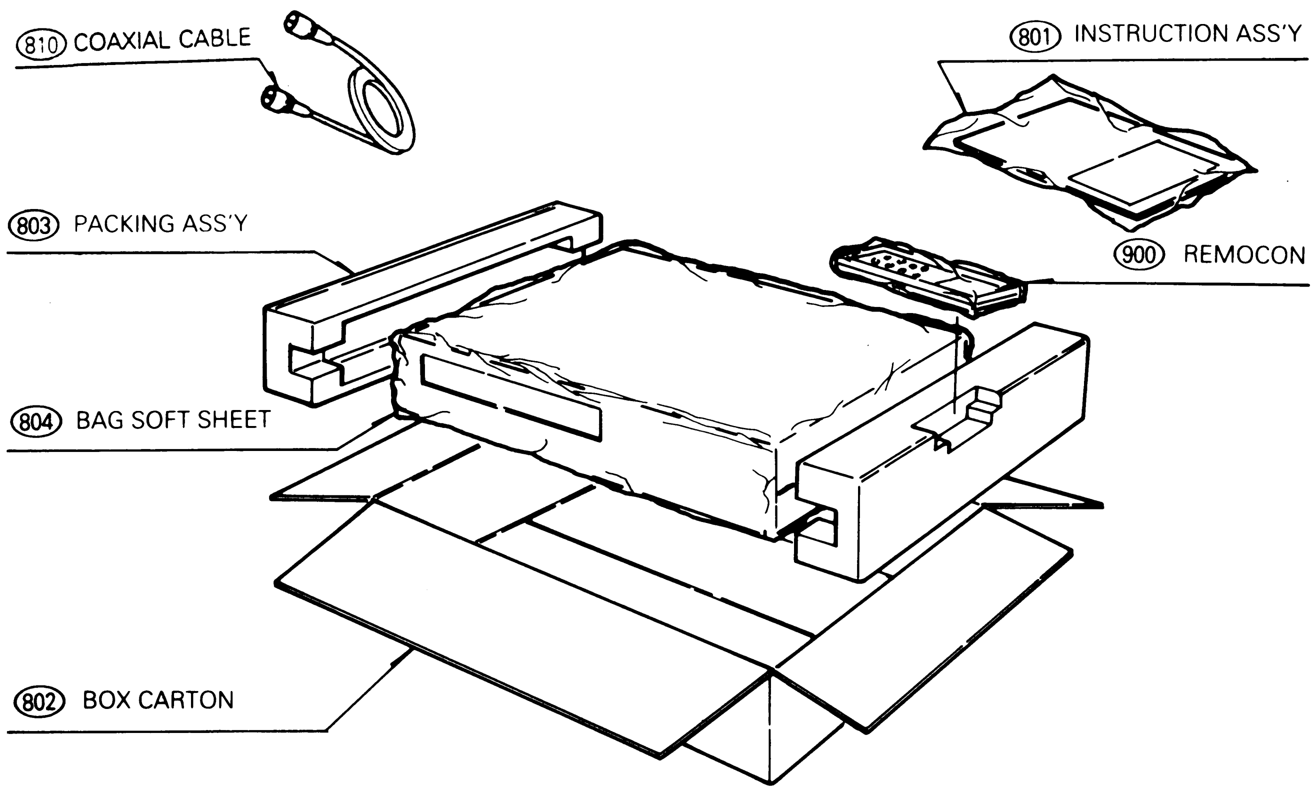
NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
2) C.B.A is the abbreviation of Circuit Board Assembly.

1. Cabinet & Main Frame Section


5
4
3
2
1
A
B
C
D
A45
A46
A42
A41
A44
A43
PRE-AMP PWB (PBA00)
MODULATOR (MO701)
TUNER(TU701)
MAIN PWB (PBM00)
DIGITRON (DG601)
TIMER PWB (PBT00)
REMOCON RECEIVER (RO601)
KEY FUNCTION PWB (PBK00)
HOUSING ASS'Y (A31)
POWER PWB (PBP00)
DECK ASS'Y (A00)
250
261
267
268
269
275
280
283
284
286
287
288
291
292
300
301
303
304
310
311
312
320
321
323
324
330
451
452
454
461
462
463

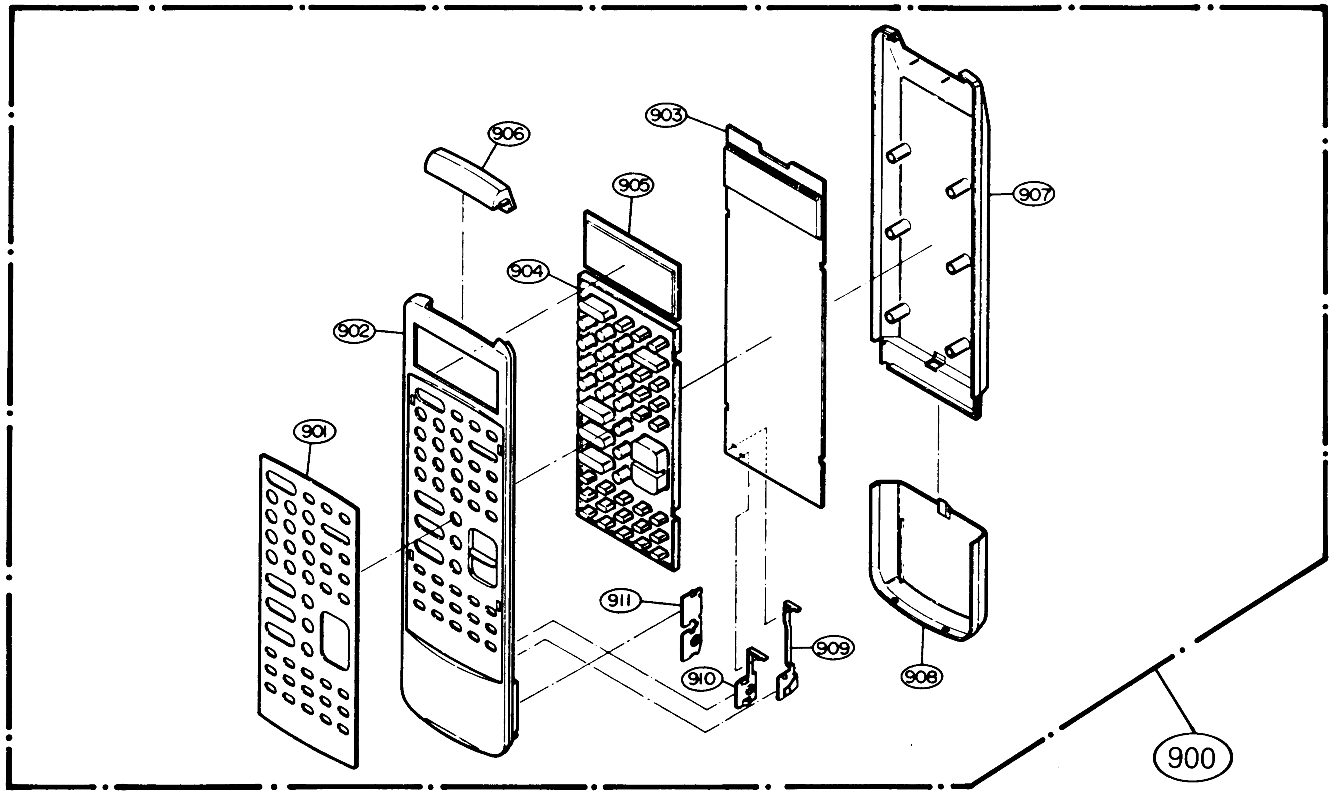
2. Packing Accessory Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



3. Remote Control Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



SECTION 3

ELECTRICAL

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ELECTRICAL ADJUSTMENT PROCEDURES 3-4

- Electronic Test Equipment 3-4
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2. Y/C Circuit 3-5
3. Audio Circuit 3-6
4. Tuner/IF Circuit 3-7
5. Title Circuit 3-9

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2. Servo Circuit 3-12
3. Y/C Circuit 3-15
4. Audio Circuit 3-22
5. Syscon/Timer/Key Function Circuit 3-24
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7. OSD/Title Circuit 3-29

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3. Y/C Circuit Diagram 3-53
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5. Audio Circuit Diagram 3-59
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2. Power P.C.Board 3-73
3. Pre-Amp P.C.Board 3-74
4. Timer/Key Board P.C.Board 3-74

ELECTRICAL ADJUSTMENT POINTS ARRANGEMENT

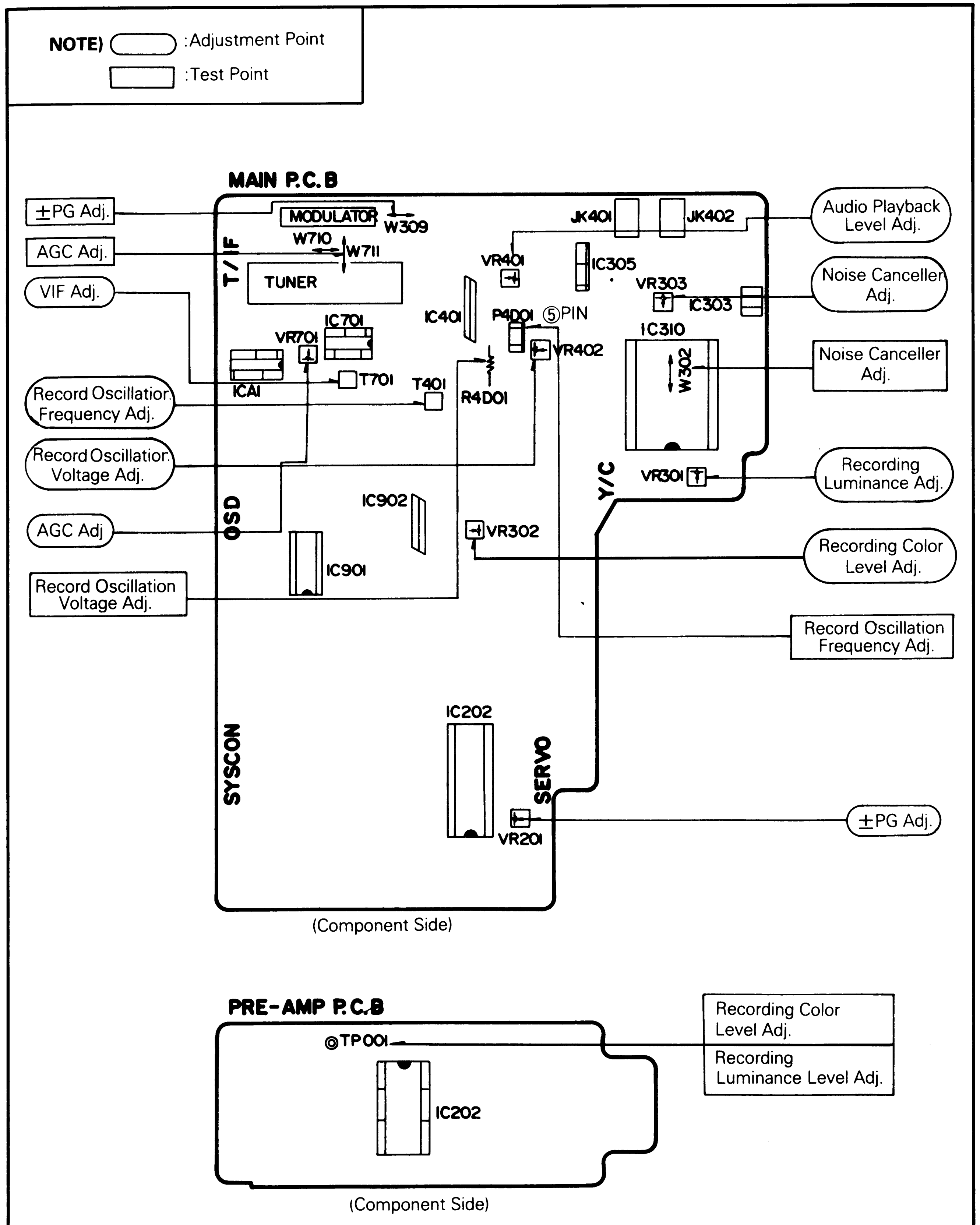

NOTE) :Adjustment Point
:Test Point
MAIN P.C.B
±PG Adj.
AGC Adj.
VIF Adj.
Record Oscillation Frequency Adj.
Record Oscillation Voltage Adj.
AGC Adj
Record Oscillation Voltage Adj.
MODULATOR
W309
W710
W711
T/IF
TUNER
IC701
VR701
ICA1
T701
T401
IC401
VR401
P4D01
⑤PIN
VR402
R4D01
JK401
JK402
IC305
VR303
IC303
IC310
W302
Y/C
VR301
OSD
IC902
IC901
VR302
SYSCON
IC202
SERVO
VR201
Audio Playback Level Adj.
Noise Canceller Adj.
Noise Canceller Adj.
Recording Luminance Adj.
Recording Color Level Adj.
Record Oscillation Frequency Adj.
±PG Adj.
(Component Side)
PRE-AMP P.C.B
TP001
IC202
Recording Color Level Adj.
Recording Luminance Level Adj.
(Component Side)

Fig. 3-1

ELECTRICAL ADJUSTMENT PROCEDURES

● Electronic Test Equipment :

- Oscilloscope
- Video Signal Generator
- Modem Tester
- Audio Signal Generator
- Level Meter
- Frequency Counter
- D.C Power Supply
- PAL B/G Signal OSD
- Sweep & Marker OSC
- Monitor Scope
- Digital Multimeter
- Digital Voltmeter

1. Servo Circuit

1) ±PG Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Playback	6.5H±0.5H	VR201	W309 (VIDEO OUT TERMINAL)

A. Purpose :

For phase dividing video A/B head with 180° and tracing each track exactly to meet head switching point with VHS SPEC.

B. Procedure :

a) Set PAL/SP test tape to playback.

b) Connect CH-1 terminal of oscilloscope to W900(H.SW) and CH-2 terminal to W309.(Video Out terminal)

c) Adjust VR201 so that the distance from A(B) head selection point of H.SW signal to the starting point of vertical synchronized signal is 6.5H(416 µ sec, 1H=64 µ sec) to trigger the complex video signal of CH-2 to CH-1 H.SW.

d) The conversion of A/B Head SW signal uses the Polarity Invert Knob of oscilloscope.

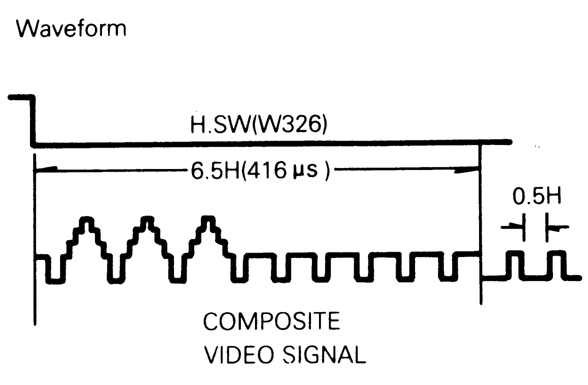


Fig. 3-2

Reference :

1. ±PG adjustment is practiced in the state of the RF level being maximum and Servo System licking.
2. The location difference of A/B Head adjustment should be within ±0.5H(32 µ sec).
3. The Adjustment Spec. and the Practice difference should be within ±0.5H(32 µ sec).
4. Oscilloscope and VCR set should connect GND.

2. Y/C Circuit

1) Noise Canceller Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Playback	0.4V±10mVp-p	VR303	W302

a) Connect the Video Signal Generator to Video in terminal.

b) Connect CH-1 terminal of oscilloscope to W302.

c) Set PAL SP test tape to playback. (with 100% white signal)

d) Adjust VR303 so that Video waveform is 0.4V±10mVp-p.

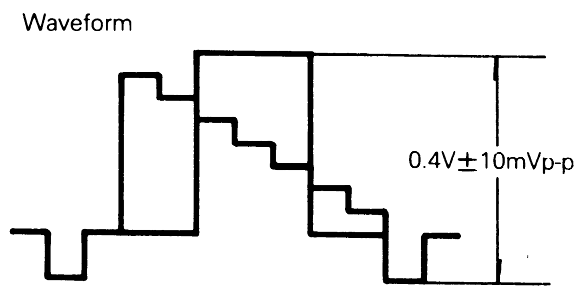


Fig. 3-3

2) Recording Color Level Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record(LP mode)	80mV±5mVp-p	VR302 REC-C	Pre-Amp(TP001) REC. Current

A. Procedure :

a) Connect the Video Signal Generator to Video in terminal.

b) Connect CH-1 terminal of oscilloscope to TP2 of Pre-Amp Circuit Board.

c) Adjust VR302 so that the minimum luminance FM output is 80mV±5mVp-p

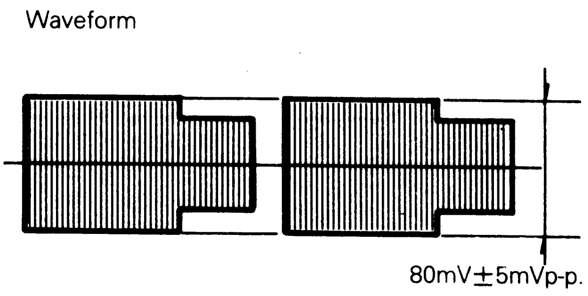


Fig. 3-4

3) Recording Luminance Level Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record(LP mode)	1.6V±10mVp-p	VR301 REC.-Y	Pre-Amp(TP001) REC. Current

A. Procedure :

a) Connect the Video Signal Generator to Video in terminal.

b) Connect CH-1 terminal of oscilloscope to TP2 of Pre-Amp Circuit Board.

c) Adjust VR301 so that the luminance FM output is 1.6V±10mVp-p.

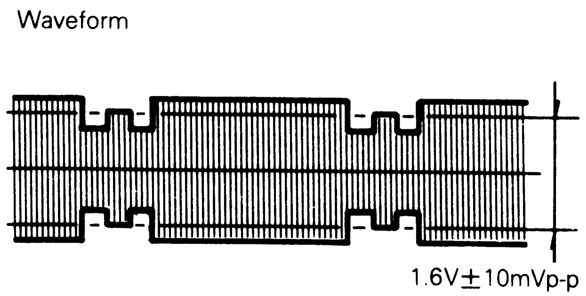


Fig. 3-5

3. Audio Circuit

1) Audio Playback Level Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Playback	-3±1.5dBm(Scart)	VR401	Audio Out Jack

A. Purpose: This is for adjusting Audio playback level to specification.

B. Procedure

a) Connect the Level Meter to Audio Out Terminal(Scart Pin).

b) Adjust VR401 so that 1KHz output level of Level Meter is -3±1.5dBm(Scart), after playing the standard tape.

c) At this time, make 6KHz level is maximum to adjust R/P Head azimuth.

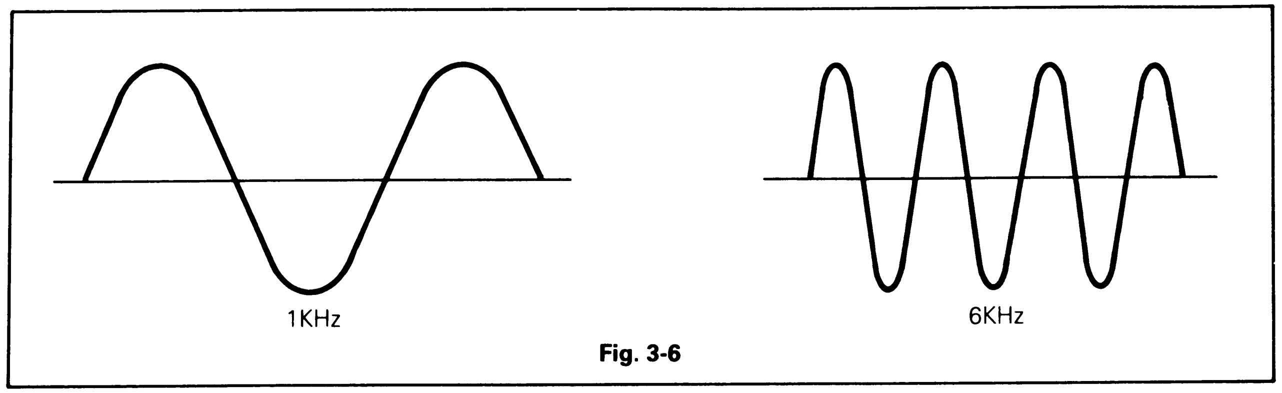


Fig. 3-6

2) Record Oscillation Frequency Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record	70KHz±5KHz	T401	⑤pin of P4D01

A. Purpose:

This is for adjusting the oscillation frequency to specification in recording.

B. Procedure:

a) Connect CH-1 terminal of oscilloscope to P4D02.

b) Connect the Frequency counter to P4D02.

c) Confirm that the oscillation frequency in recording is 70KHz±5KHz to connect the frequency counter terminal to TP401.

d) At this time, adjust OSC coil(T401) and make the oscillation frequency fit to 70KHz±5KHz.

3) Record Oscillation Voltage Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record	2.3mV RMS	VR402	R4D01 Both terminal

A. Purpose :

This is for adjusting the bias current to specification in recording.

B. Procedure:

a) Connect the Level Meter terminal to both terminals of R4D01.

b) Confirm that the oscillation voltage is 2.3mV RMS to connect the Level Meter terminal to both terminals of Lug pin R/P head PWB during recording.

c) At this time, adjust VR402 and make the oscillation voltage fit to specification(2.3mV RMS)

4. Tuner/IF Circuit

1) Adjustment Points and Connection

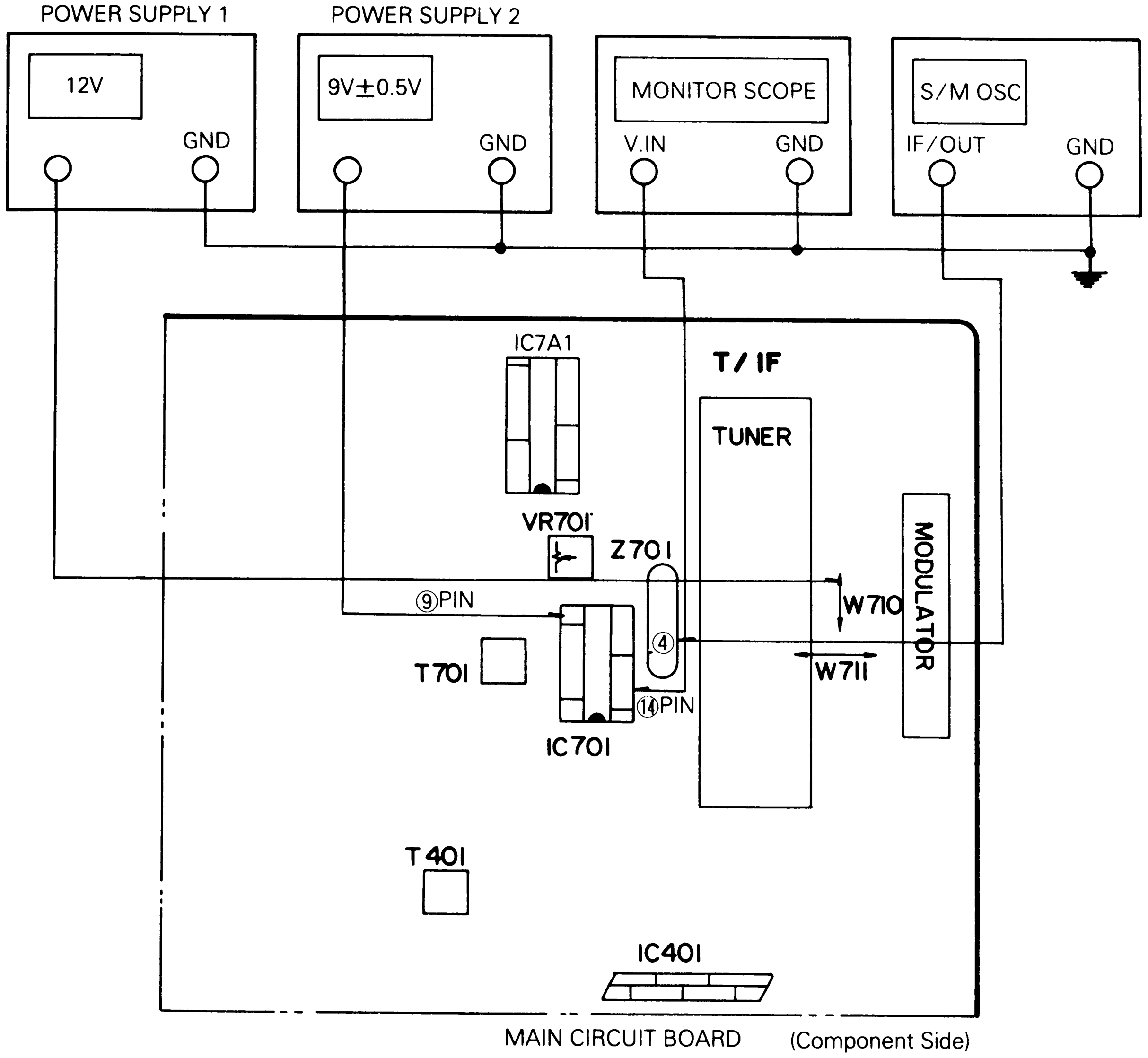


Fig. 3-7

*** Caution in testing**

1. When practing this adjustment, adjust after more than 20 minutes with VCR set turning on.
2. Adjust after completing itself test of measuring apparatus.
3. Sweep OSC Marker frequency is followed by Table 1.
4. IF are adjusted and Tuner is not

*** Abbreviation**

- APC:Adjacent Picture Carrier
- S I F:Sound Intermediate Frequency
- C I F:Color Intermediate Frequency
- CEN:Center Frequency
- P I F:Picture Intermediate Frequency
- ASC:Adjacent Sound Carrier

〈Table 1〉 Frequency Table (Unit : MHz)

	1	2	3	4	5	6
FREQUENCY	32.40	33.40	34.47	36.00	38.90	40.40
MARKER NAME	APC	SIF	CIF	CEN	PIF	ASC

2) VIF Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
EE(without signal)	Refer to waveform	T701	See Fig. 3-7

A. Procedure :
a) Attenuate the sweep OSC gain by 25dB~30dB ATT.(output gain 80~90dBu)
b) Apply DC 12V to W710(power supply 1).
c) Apply DC 9V±0.5V to the ⑨pin of IC701. (power supply 2)
d) Adjust T701 so that monitor waveform is as shown in Fig. 3-8.

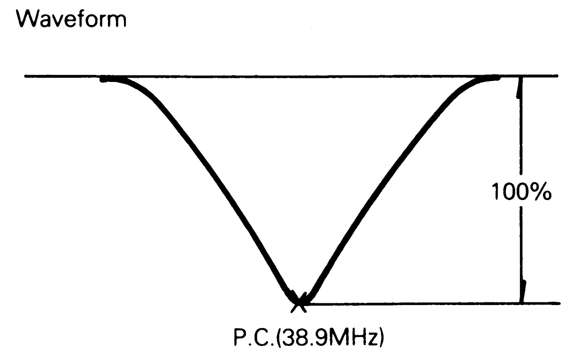


Fig. 3-8

3) AGC Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
EE(with signal)	4.6V±0.1V	VR701	W711

A. Procedure :
a) Be tuning 9CH(strength of electric field 70dB±1dB) fine.
b) Connect the Digital Voltmeter to W711.
c) Adjust VR701 so that the digital voltmeter is 4.6V±0.1V.

Reference :
Maintain the input gain in adjusting AGC faithfully.

4) SIF Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
CH(normal reception)	Audio Distortion : low price	T702	Audio output (SCART or RCA)

A. Procedure :
a) Be tuning PAL B/G CH(strength of electric field : more than 60dBu) fine.
b) Adjust T702(detect coil) so that Audio distortion is low price.

5. Title Circuit

1) Title Character Level Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
EE(Reception Tuner)	85% white	VR901	W999

A. Purpose
Maintain light of title character to the best condition in recording.

B. Procedure :
a) Receive signal with 100% white signal.
b) Connect the probe of scope to W999.
c) Adjust VR901 so that the level of character is same as the level of 85% white signal.(standard 100% white signal)

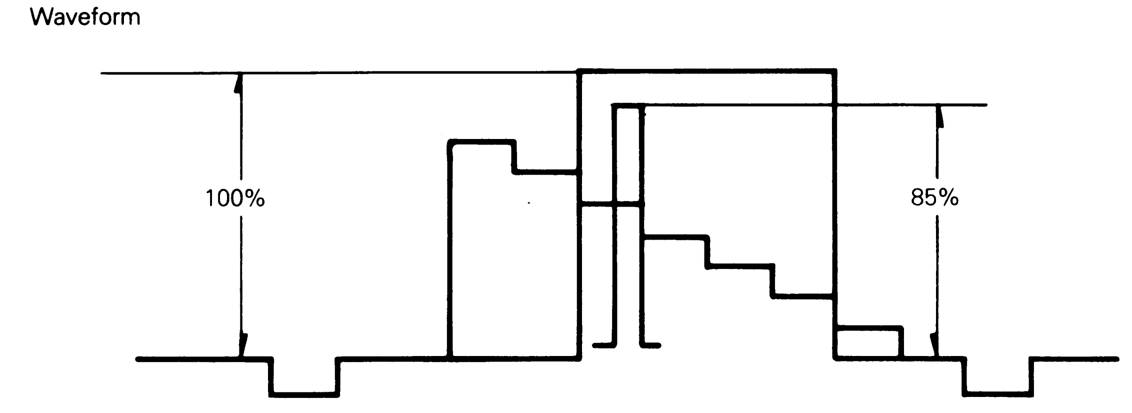
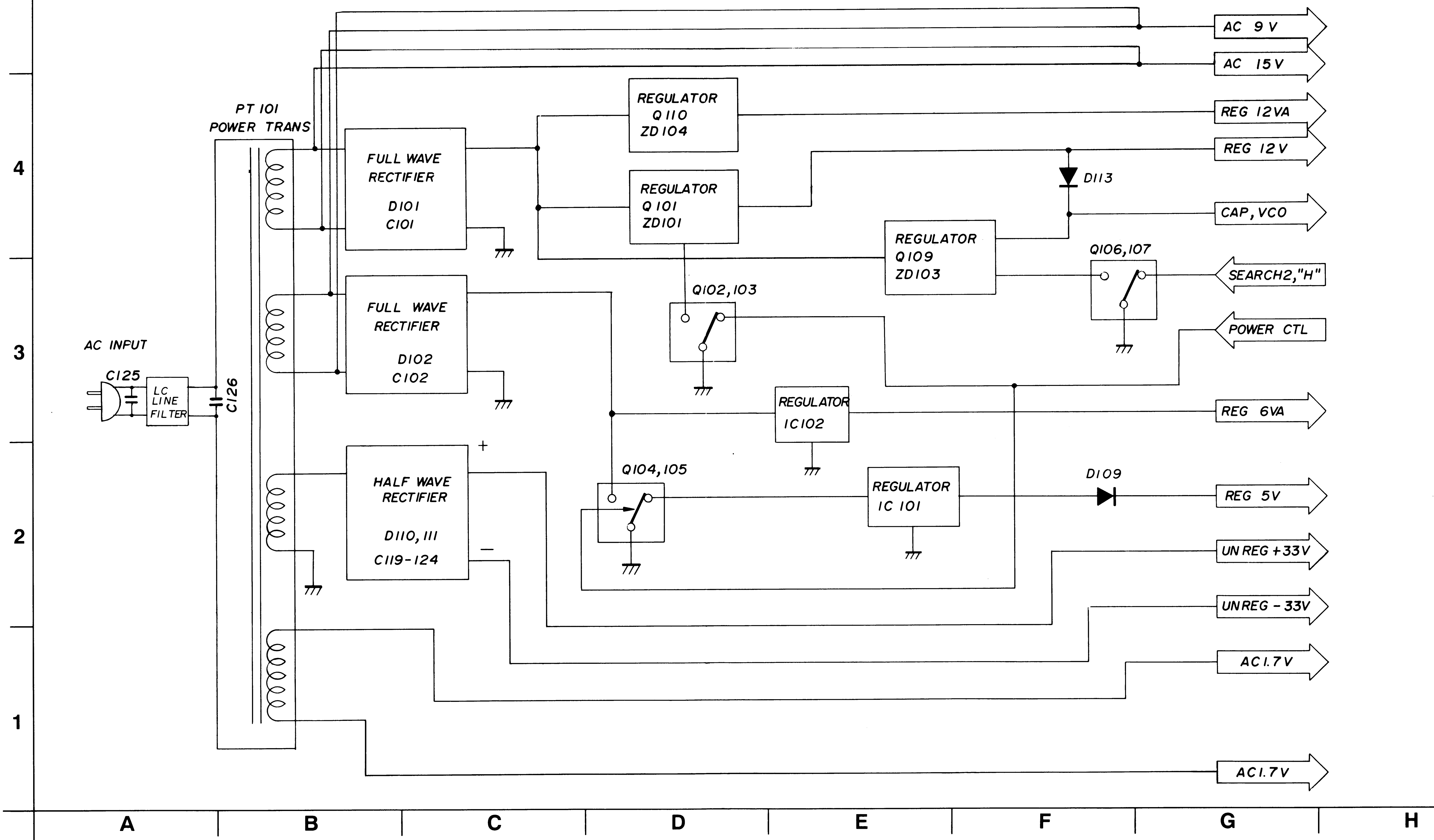


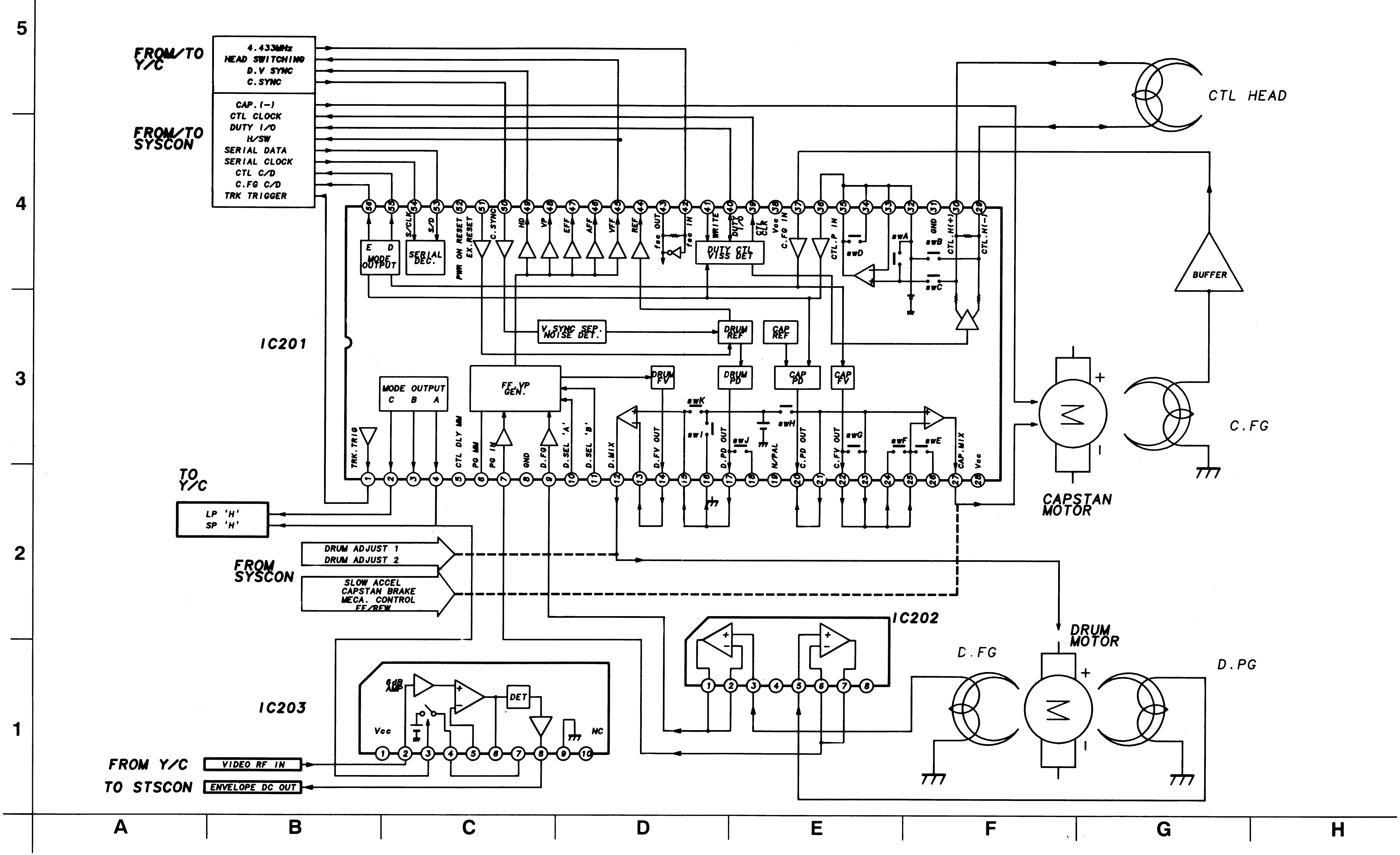
Fig. 3-9

BLOCK DIAGRAMS

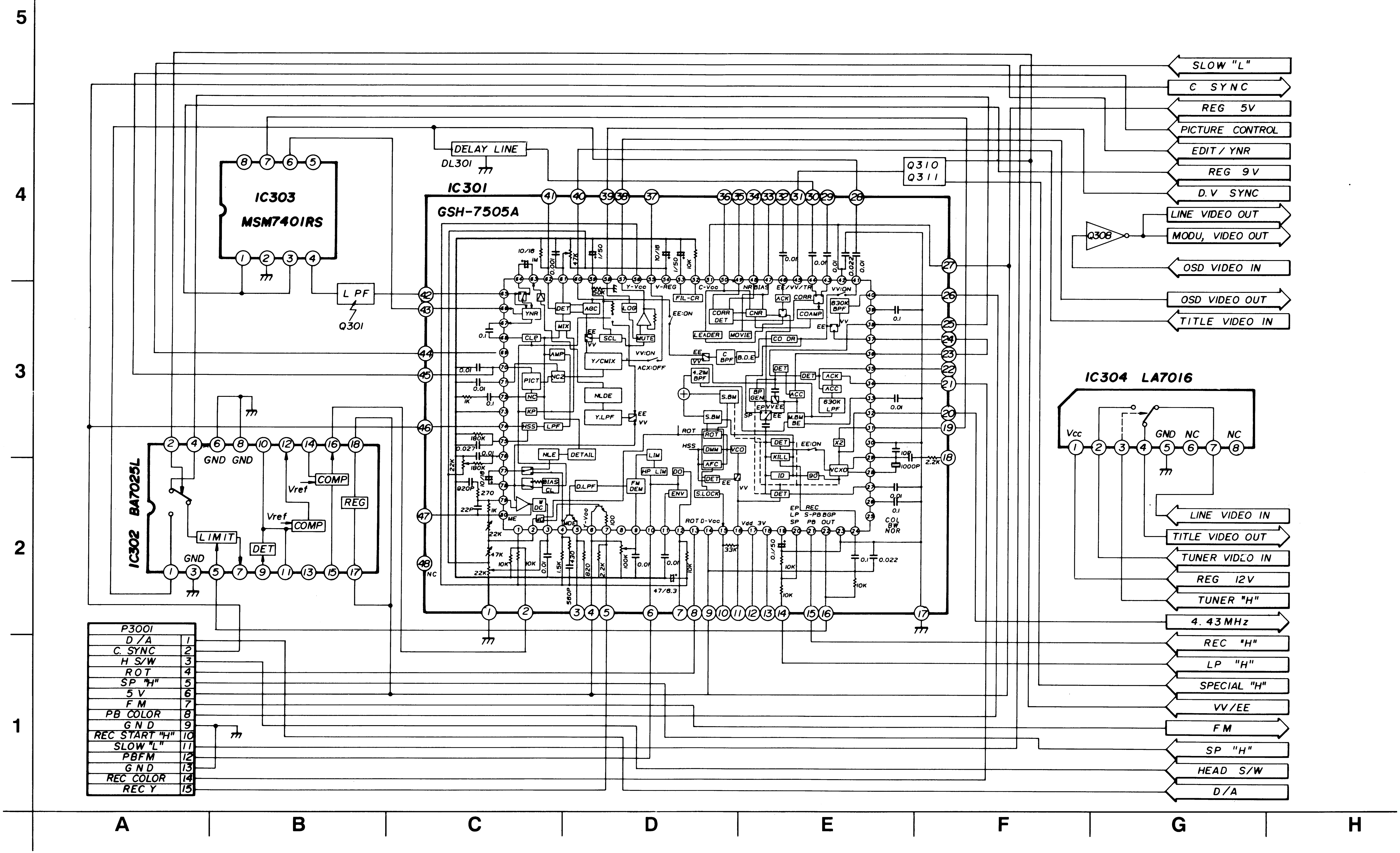
1. Power Block Diagram


AC INPUT
C125
LC LINE FILTER
C126
PT 101
POWER TRANS
FULL WAVE RECTIFIER
D101
C101
FULL WAVE RECTIFIER
D102
C102
HALF WAVE RECTIFIER
D110, 111
C119-124
+
−
REGULATOR
Q110
ZD104
REGULATOR
Q101
ZD101
REGULATOR
Q109
ZD103
Q102, 103
Q104, 105
REGULATOR
IC102
REGULATOR
IC 101
D113
D109
Q106, 107
AC 9 V
AC 15 V
REG 12VA
REG 12 V
CAP, VCO
SEARCH2, "H"
POWER CTL
REG 6VA
REG 5V
UN REG +33V
UNREG −33V
AC1.7V
AC1.7V
5
4
3
2
1
A
B
C
D
E
F
G
H

2. Servo Block Diagram

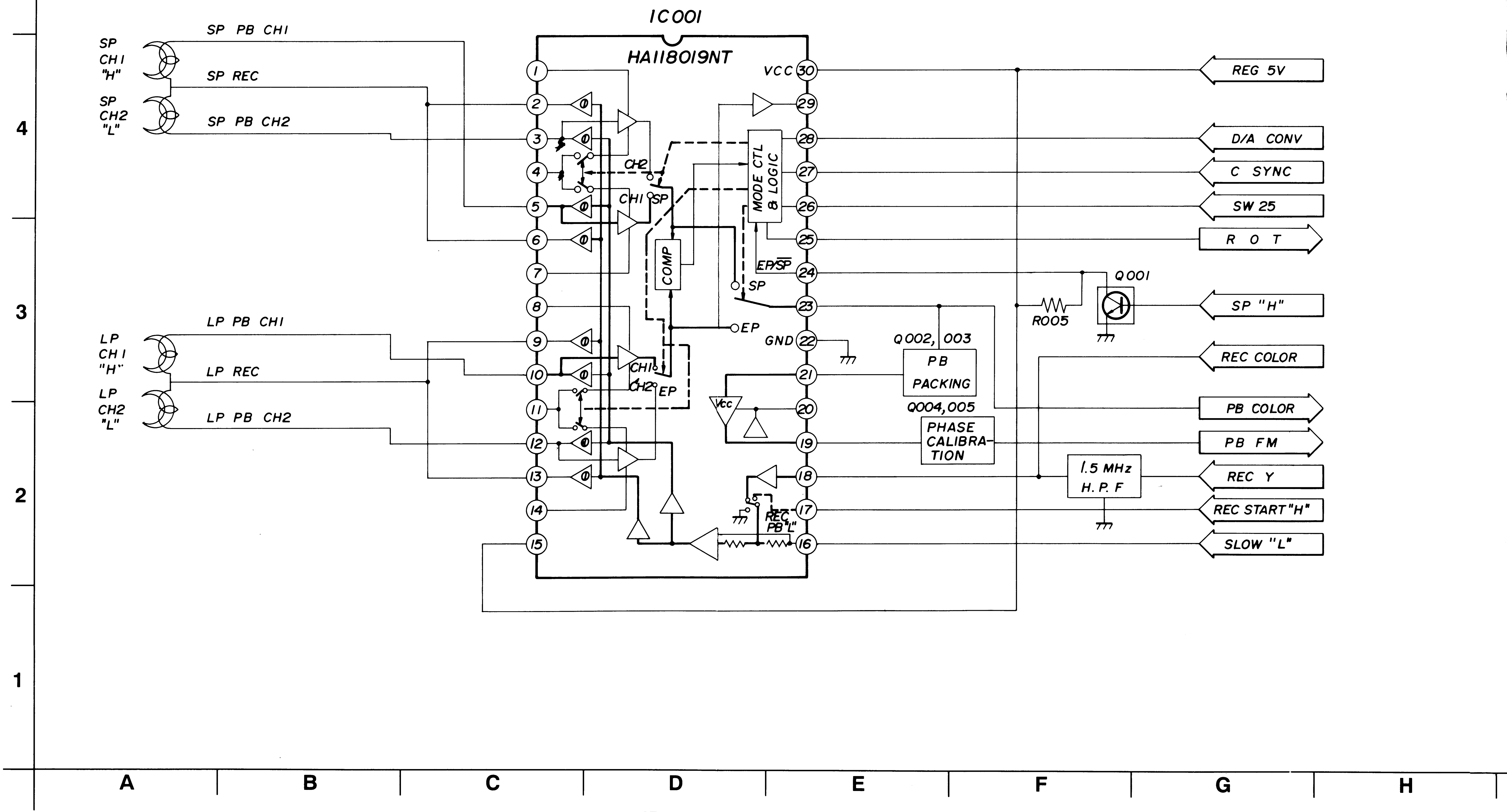

FROM/TO Y/C
4.433MHz
HEAD SWITCHING
D.V SYNC
C.SYNC
FROM/TO SYSCON
CAP.(−)
CTL CLOCK
DUTY I/O
H/SW
SERIAL DATA
SERIAL CLOCK
CTL C/D
C.FG C/D
TRK TRIGGER
IC201
E D MODE OUTPUT
SERIAL DEC.
S/CLK
S/D
PWR ON RESET
EX.RESET
C.SYNC
HD
VP
EFF
AFF
VFF
REF
fsc OUT
fsc IN
WRITE
DUTY I/O
CTL CLK
Vcc
C.FG IN
CTL.P IN
swD
swA
GND
swB
swC
CTL.H(+)
CTL.H(−)
DUTY CTL VISS DET
V.SYNC SEP. NOISE DET.
DRUM REF
CAP REF
MODE OUTPUT C B A
FF, VP GEN.
DRUM FV
DRUM PD
CAP PD
CAP FV
swK
swI
swJ
swH
swG
swF
swE
TRK.TRIG
CTL DLY MM
PG MM
PG IN
GND
D.FG
D.SEL 'A'
D.SEL 'B'
D.MIX
D.FV OUT
D.PD OUT
N/PAL
C.PD OUT
C.FV OUT
CAP.MIX
Vcc
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56
CTL HEAD
BUFFER
CAPSTAN MOTOR
+
C.FG
TO Y/C
LP 'H'
SP 'H'
FROM SYSCON
DRUM ADJUST 1
DRUM ADJUST 2
SLOW ACCEL
CAPSTAN BRAKE
MECA. CONTROL
FF/REW
IC202
1 2 3 4 5 6 7 8
DRUM MOTOR
D.FG
D.PG
IC203
6dB AMP
DET
Vcc
NC
1 2 3 4 5 6 7 8 9 10
FROM Y/C
VIDEO RF IN
TO STSCON
ENVELOPE DC OUT
5
4
3
2
1
A
B
C
D
E
F
G
H

3. Y/C Block Diagram

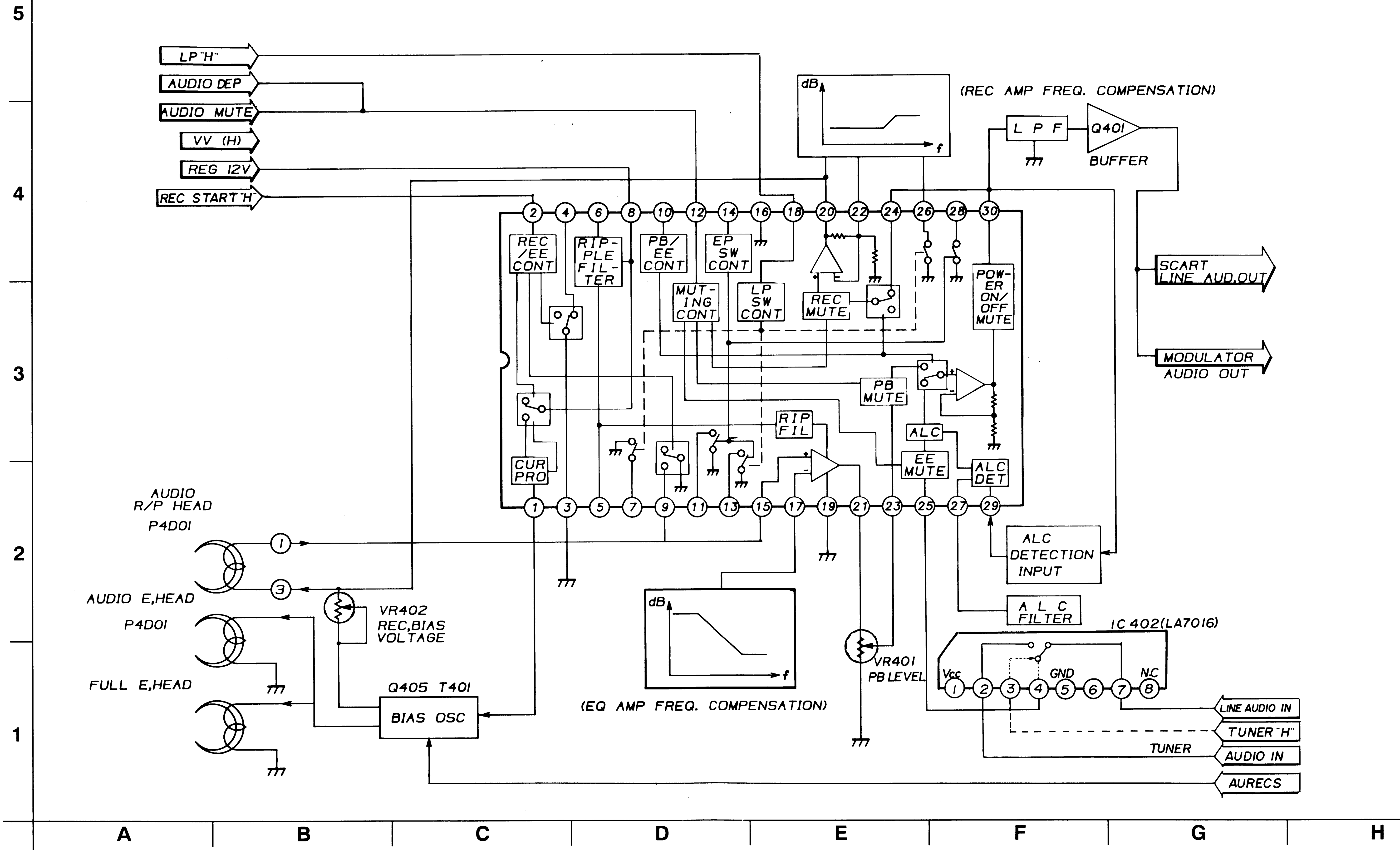


IC303
MSM7401RS
DELAY LINE
DL301
IC301
GSH-7505A
Q310
Q311
LPF
Q301
IC302 BA7025L
GND GND
GND
LIMIT
DET
Vref
COMP
REG
Q308
IC304 LA7016
Vcc
GND
NC
YNR
DET
AGC
MIX
LOG
SCL
MUTE
CLP
AMP
NC2
PICT
NC
KP
HSS
LPF
Y/CMIX
NLDE
Y.LPF
NLE
DETAIL
BIAS
CL
D.LPF
DC
FM DEM
LIM
HP LIM
DO
ENV
FIL-CR
C-Vcc
V-REG
Y-Vcc
CORR DET
CNR
ACK
CORR
COAMP
830K BPF
LEADER
MOVIE
CO DR
C BPF
B.D.E
4.2M BPF
S.BM
ROT
DMM
AFC
VCO
DET
S.LOCK
BP GEN
ACC
ACK
630K LPF
M.BM BE
KILL
ID
90
VCXO
X2
EE:ON
VV:ON
ACX:OFF
EE/VV/TR
NR BIAS
COL BW NOR
EP REC
LP S-PB BGP
SP PB OUT
ROT D-Vcc
Vdd 3V
SLOW "L"
C SYNC
REG 5V
PICTURE CONTROL
EDIT / YNR
REG 9V
D.V SYNC
LINE VIDEO OUT
MODU, VIDEO OUT
OSD VIDEO IN
OSD VIDEO OUT
TITLE VIDEO IN
LINE VIDEO IN
TITLE VIDEO OUT
TUNER VIDEO IN
REG 12V
TUNER "H"
4.43MHz
REC "H"
LP "H"
SPECIAL "H"
VV/EE
FM
SP "H"
HEAD S/W
D/A
P3001
1 D/A
2 C. SYNC
3 H S/W
4 ROT
5 SP "H"
6 5 V
7 F M
8 PB COLOR
9 G N D
10 REC START "H"
11 SLOW "L"
12 PBFM
13 G N D
14 REC COLOR
15 REC Y
A B C D E F G H
1 2 3 4 5

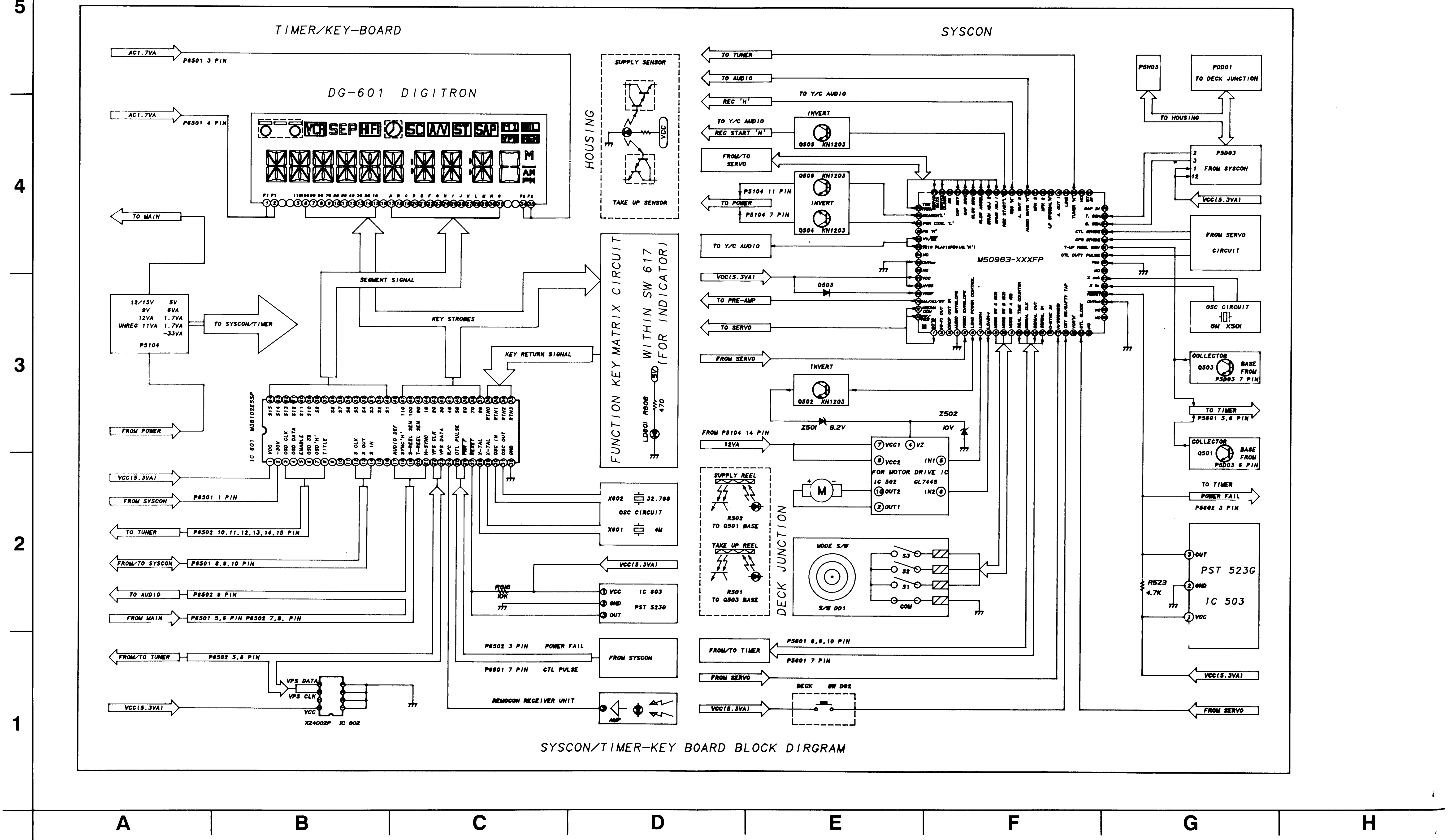
4 Pre-Amp Block Diagram


IC001
HA118019NT
SP CH1 "H"
SP CH2 "L"
SP PB CH1
SP REC
SP PB CH2
LP CH1 "H"
LP CH2 "L"
LP PB CH1
LP REC
LP PB CH2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
VCC
GND
CH2
CH1
SP
CH1
CH2
EP
COMP
MODE CTL & LOGIC
EP/$\overline{SP}$
SP
EP
Vcc
REC
PB "L"
Q002, 003
PB PACKING
Q004,005
PHASE CALIBRATION
R005
Q001
1.5 MHz H.P.F
REG 5V
D/A CONV
C SYNC
SW 25
R O T
SP "H"
REC COLOR
PB COLOR
PB FM
REC Y
REC START "H"
SLOW "L"
5
4
3
2
1
A
B
C
D
E
F
G
H

5. Audio Block Diagram

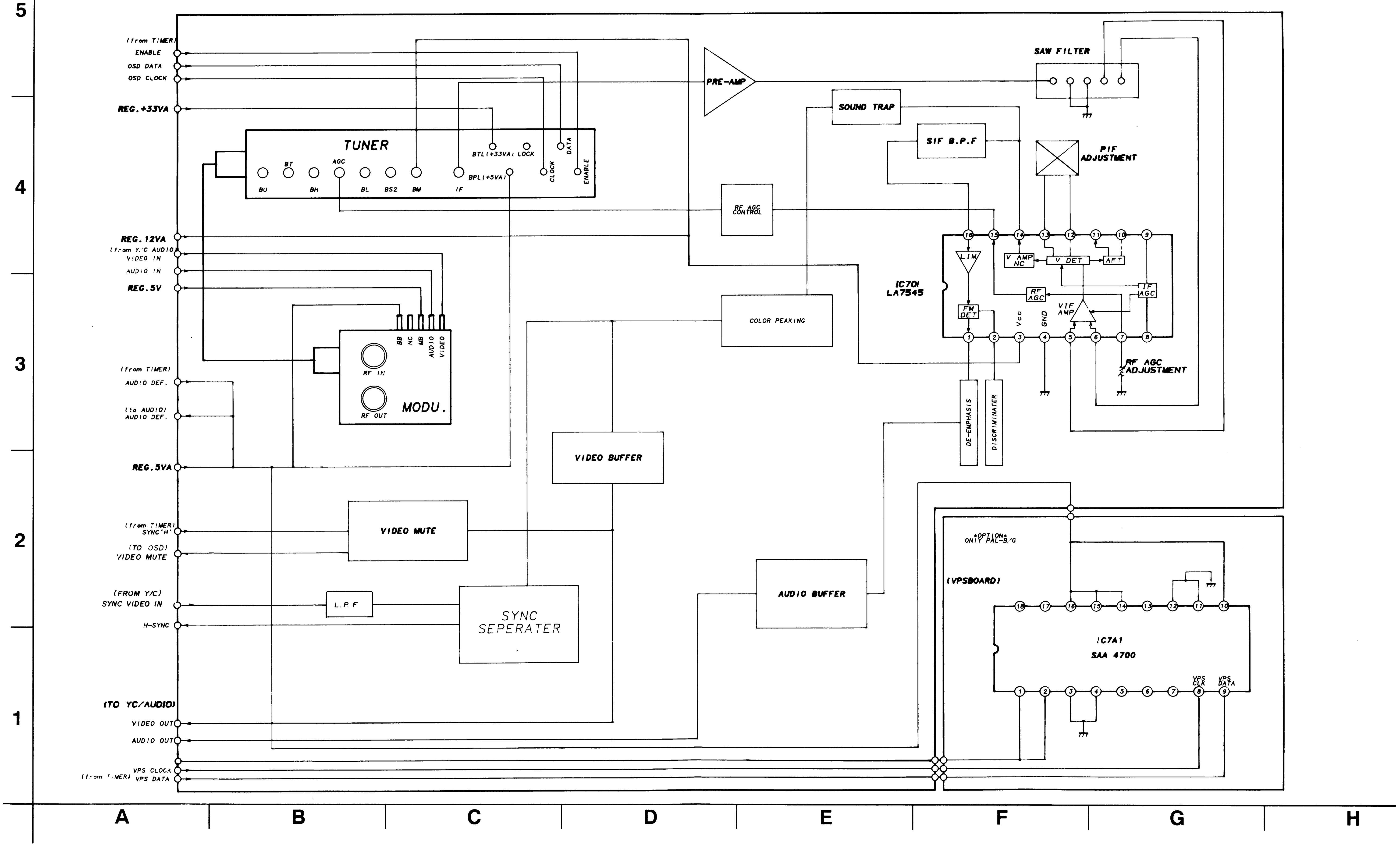

5
4
3
2
1
LP"H"
AUDIO DEP
AUDIO MUTE
VV (H)
REG 12V
REC START"H"
dB
f
(REC AMP FREQ. COMPENSATION)
L P F
Q401
BUFFER
REC /EE CONT
RIP-PLE FIL-TER
PB/ EE CONT
EP SW CONT
MUT-ING CONT
LP SW CONT
REC MUTE
POW-ER ON/ OFF MUTE
SCART LINE AUD.OUT
MODULATOR AUDIO OUT
PB MUTE
ALC
EE MUTE
ALC DET
RIP FIL
CUR PRO
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
AUDIO R/P HEAD
P4D01
AUDIO E,HEAD
P4D01
FULL E,HEAD
1
3
VR402 REC,BIAS VOLTAGE
Q405 T401
BIAS OSC
dB
f
(EQ AMP FREQ. COMPENSATION)
VR401 PB LEVEL
ALC DETECTION INPUT
A L C FILTER
IC 402(LA7016)
Vcc
GND
N.C
1
2
3
4
5
6
7
8
LINE AUDIO IN
TUNER"H"
TUNER
AUDIO IN
AURECS
A
B
C
D
E
F
G
H

6. Syscon/Timer/Key Function Block Diagram

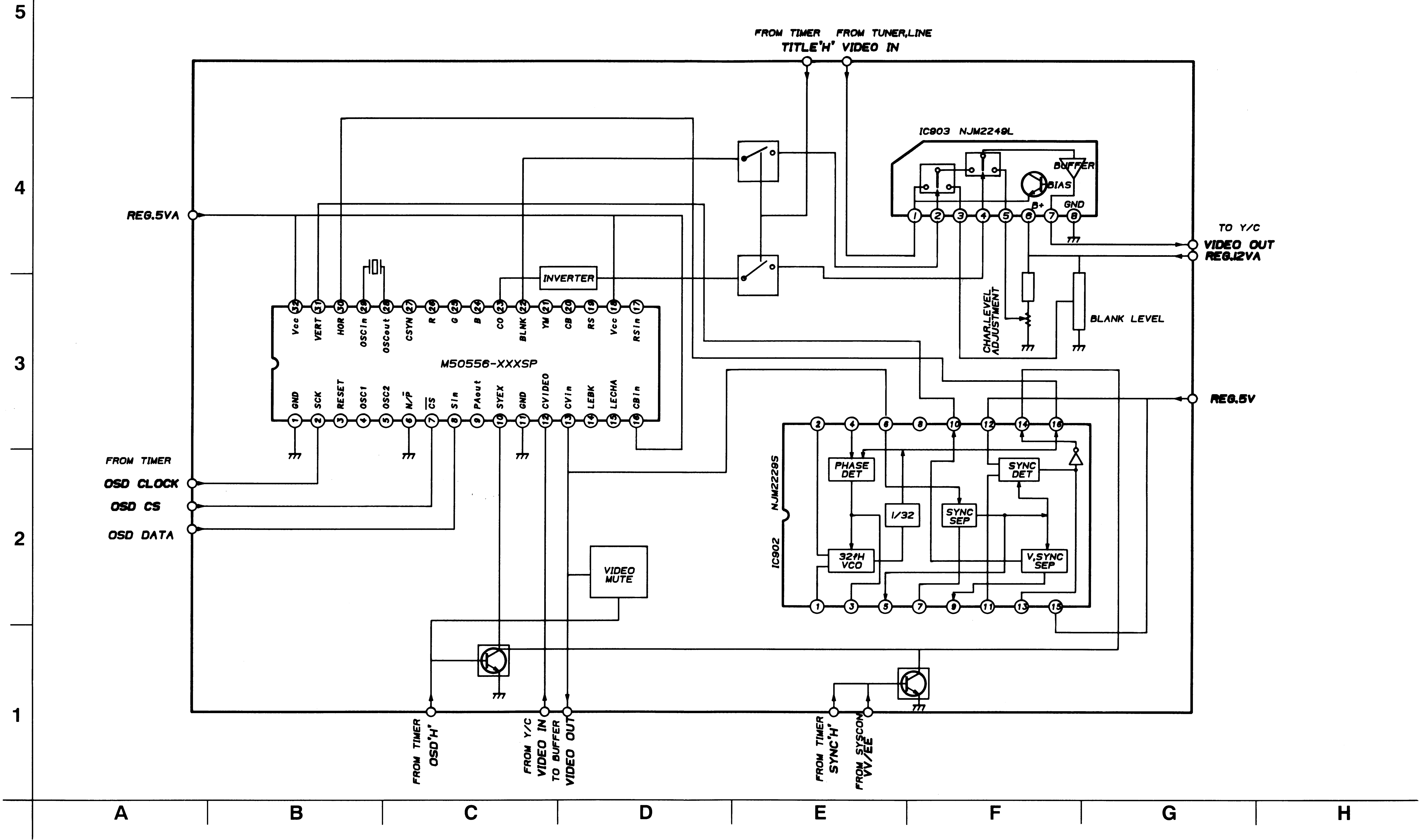

TIMER/KEY-BOARD
SYSCON
AC1.7VA
P6501 3 PIN
AC1.7VA
P6501 4 PIN
DG-601 DIGITRON
VCR SEP HIFI 5C A/V ST SAP
M
AM
PM
TO MAIN
12/15V 5V
9V 6VA
12VA 1.7VA
UNREG 11VA 1.7VA
-33VA
P5104
TO SYSCON/TIMER
SEGMENT SIGNAL
KEY STROBES
KEY RETURN SIGNAL
FROM POWER
IC 601 M38102E3SP
VCC(5.3VA)
FROM SYSCON
P6501 1 PIN
TO TUNER
P6502 10,11,12,13,14,15 PIN
FROM/TO SYSCON
P6501 8,9,10 PIN
TO AUDIO
P6502 9 PIN
FROM MAIN
P6501 5,6 PIN P6502 7,8, PIN
FROM/TO TUNER
P6502 5,6 PIN
VCC(5.3VA)
VPS DATA
VPS CLK
VCC
X24C02P IC 602
HOUSING
SUPPLY SENSOR
TAKE UP SENSOR
VCC
FUNCTION KEY MATRIX CIRCUIT
WITHIN SW 617
(FOR INDICATOR)
LD601 R608 470
X602 32.768
OSC CIRCUIT
X601 4M
VCC(5.3VA)
R616 10K
VCC
GND
OUT
IC 603
PST 523G
P6502 3 PIN POWER FAIL
P6501 7 PIN CTL PULSE
FROM SYSCON
REMOCON RECEIVER UNIT
AMP
TO TUNER
TO AUDIO
REC 'H'
TO Y/C AUDIO
TO Y/C AUDIO
REC START 'H'
INVERT
Q505 KN1203
FROM/TO SERVO
Q506 KN1203
P5104 11 PIN
TO POWER
P5104 7 PIN
INVERT
Q504 KN1203
TO Y/C AUDIO
VCC(5.3VA)
D503
TO PRE-AMP
TO SERVO
FROM SERVO
M50963-XXXFP
INVERT
Q502 KN1203
Z502
10V
Z501 8.2V
FROM P5104 14 PIN
12VA
VCC1
VZ
VCC2
IN1
FOR MOTOR DRIVE IC
IC 502 GL7445
OUT2
IN2
OUT1
M
DECK JUNCTION
SUPPLY REEL
RS02
TO Q501 BASE
TAKE UP REEL
RS01
TO Q503 BASE
MODE S/W
S3
S2
S1
COM
S/W DD1
FROM/TO TIMER
P5601 8,9,10 PIN
P5601 7 PIN
FROM SERVO
VCC(5.3VA)
DECK SW D02
P5H03
PDD01
TO DECK JUNCTION
TO HOUSING
P5D03
FROM SYSCON
VCC(5.3VA)
FROM SERVO
CIRCUIT
OSC CIRCUIT
6M X501
COLLECTOR
Q503
BASE
FROM
P5D03 7 PIN
TO TIMER
P5601 5,6 PIN
COLLECTOR
Q501
BASE
FROM
P5D03 6 PIN
TO TIMER
POWER FAIL
P5602 3 PIN
R523
4.7K
OUT
GND
VCC
PST 523G
IC 503
VCC(5.3VA)
FROM SERVO
A
B
C
D
E
F
G
H
1
2
3
4
5

SYSCON/TIMER-KEY BOARD BLOCK DIRGRAM

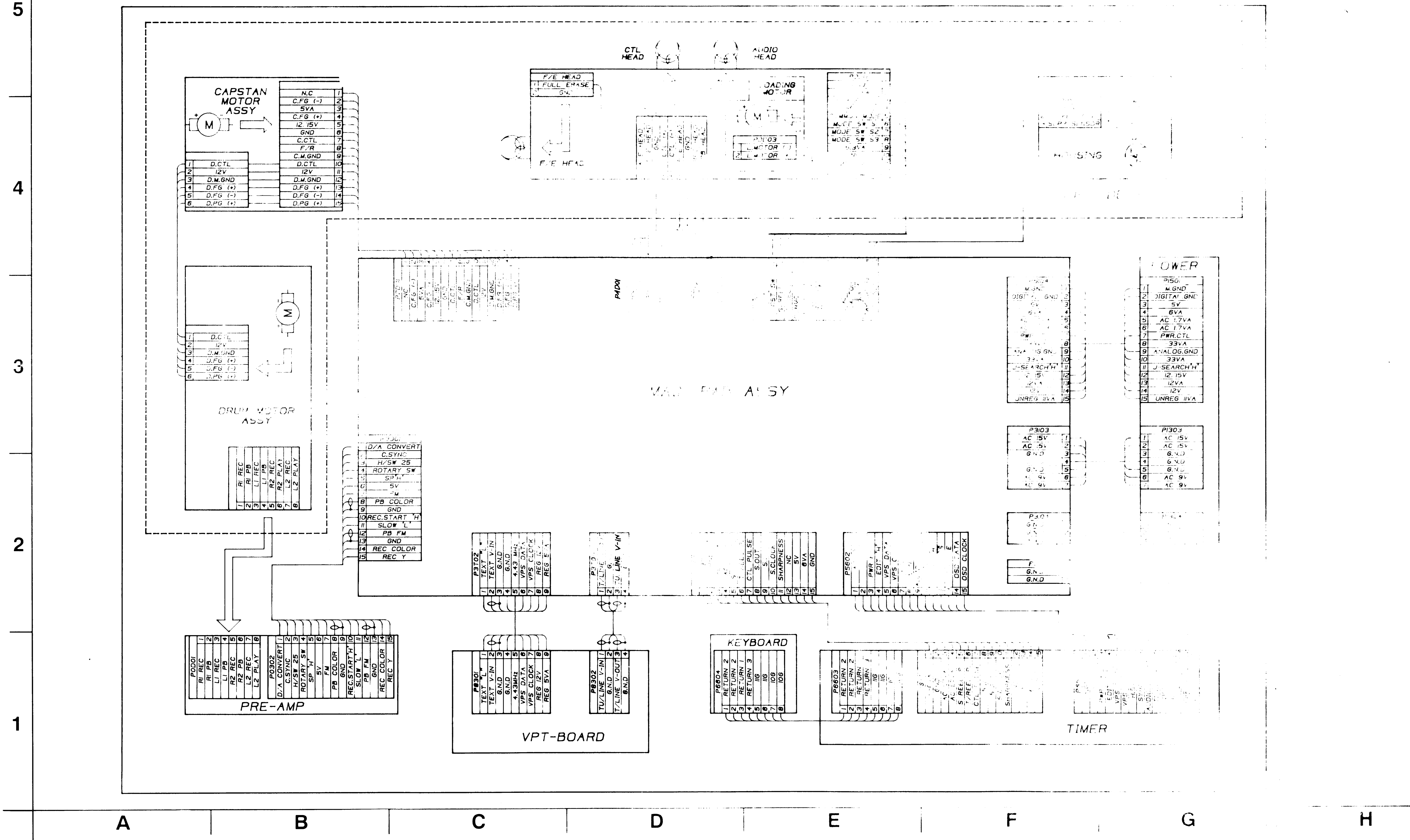
7. Tuner/IF Block Diagram


5
4
3
2
1
A
B
C
D
E
F
G
H
(from TIMER)
ENABLE
OSD DATA
OSD CLOCK
REG.+33VA
REG.12VA
(from Y/C AUDIO)
VIDEO IN
AUDIO IN
REG.5V
(from TIMER)
AUDIO DEF.
(to AUDIO)
AUDIO DEF.
REG.5VA
(from TIMER)
SYNC'H'
(TO OSD)
VIDEO MUTE
(FROM Y/C)
SYNC VIDEO IN
H-SYNC
(TO YC/AUDIO)
VIDEO OUT
AUDIO OUT
VPS CLOCK
(from TIMER) VPS DATA
TUNER
BU
BT
BH
AGC
BL
BS2
BM
IF
BTL(+33VA)
LOCK
BPL(+5VA)
CLOCK
DATA
ENABLE
BB
NC
MB
AUDIO
VIDEO
RF IN
RF OUT
MODU.
PRE-AMP
SOUND TRAP
SAW FILTER
SIF B.P.F
PIF ADJUSTMENT
RF AGC CONTROL
COLOR PEAKING
VIDEO BUFFER
VIDEO MUTE
L.P.F
SYNC SEPERATER
AUDIO BUFFER
IC701
LA7545
LIM
V AMP NC
V DET
AFT
RF AGC
IF AGC
FM DET
Vcc
GND
VIF AMP
RF AGC ADJUSTMENT
DE-EMPHASIS
DISCRIMINATER
OPTION
ONLY PAL-B/G
(VPSBOARD)
IC7A1
SAA 4700
VPS CLK
VPS DATA
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

8. OSD/Title Block Diagram


5
4
3
2
1
FROM TIMER
TITLE'H'
FROM TUNER,LINE
VIDEO IN
IC903 NJM2249L
BUFFER
BIAS
B+
GND
1 2 3 4 5 6 7 8
TO Y/C
VIDEO OUT
REG.12VA
CHAR.LEVEL ADJUSTMENT
BLANK LEVEL
REG.5VA
INVERTER
Vcc 32
VERT 31
HOR 30
OSCin 29
OSCout 28
CSYN 27
R 26
G 25
B 24
CO 23
BLNK 22
YM 21
CB 20
RS 19
Vcc 18
RSin 17
M50556-XXXSP
GND 1
SCK 2
RESET 3
OSC1 4
OSC2 5
N/P̄ 6
CS̄ 7
SIn 8
PAout 9
SYEX 10
GND 11
CVIDEO 12
CVin 13
LEBK 14
LECHA 15
CBin 16
REG.5V
FROM TIMER
OSD CLOCK
OSD CS
OSD DATA
VIDEO MUTE
IC902 NJM2229S
2 4 6 8 10 12 14 16
PHASE DET
1/32
SYNC SEP
SYNC DET
32fH VCO
V,SYNC SEP
1 3 5 7 9 11 13 15
FROM TIMER
OSD'H'
FROM Y/C
VIDEO IN
TO BUFFER
VIDEO OUT
FROM TIMER
SYNC'H'
FROM SYSCON
VV/EE
A
B
C
D
E
F
G
H

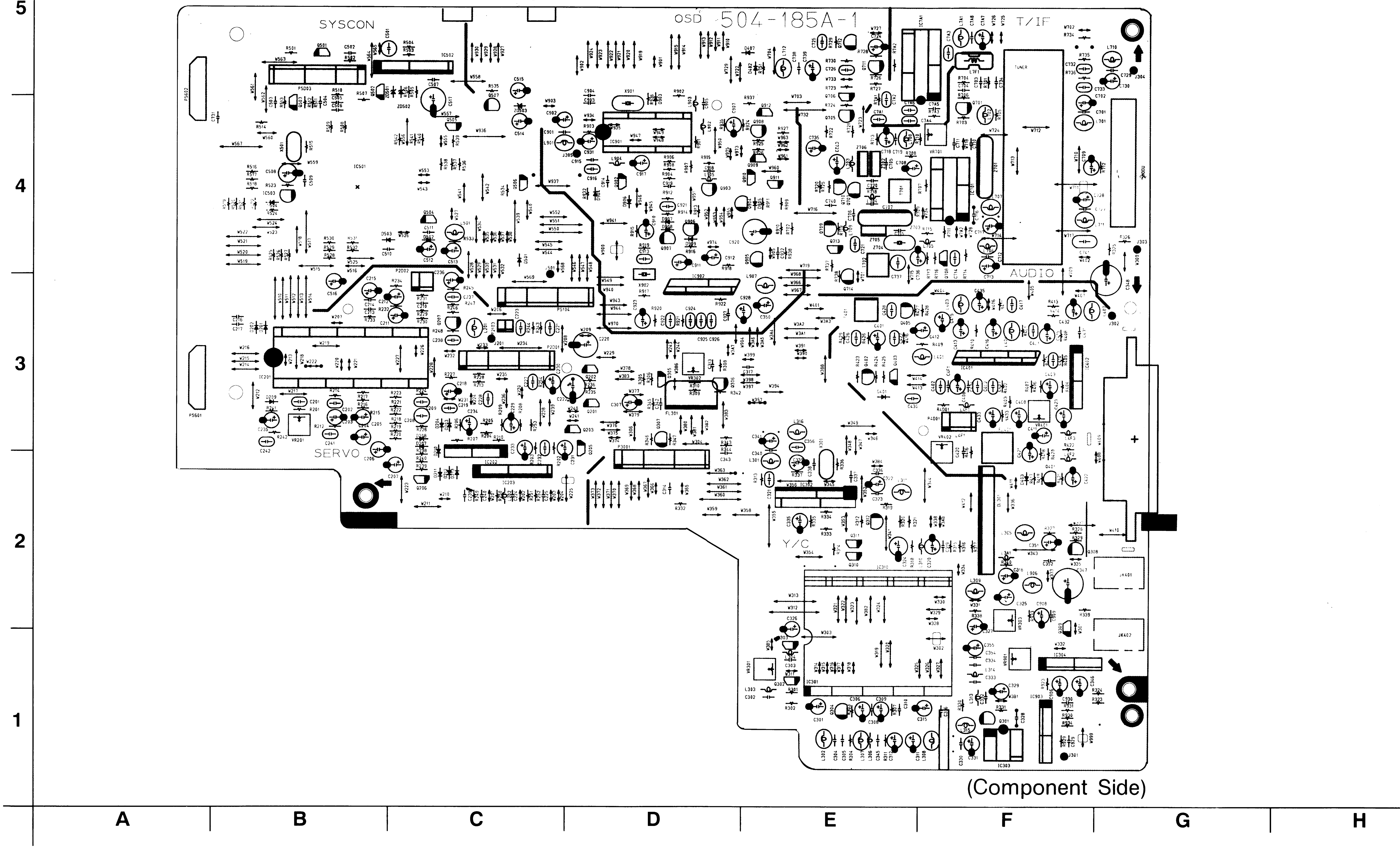
9. Connection Circuit Diagram



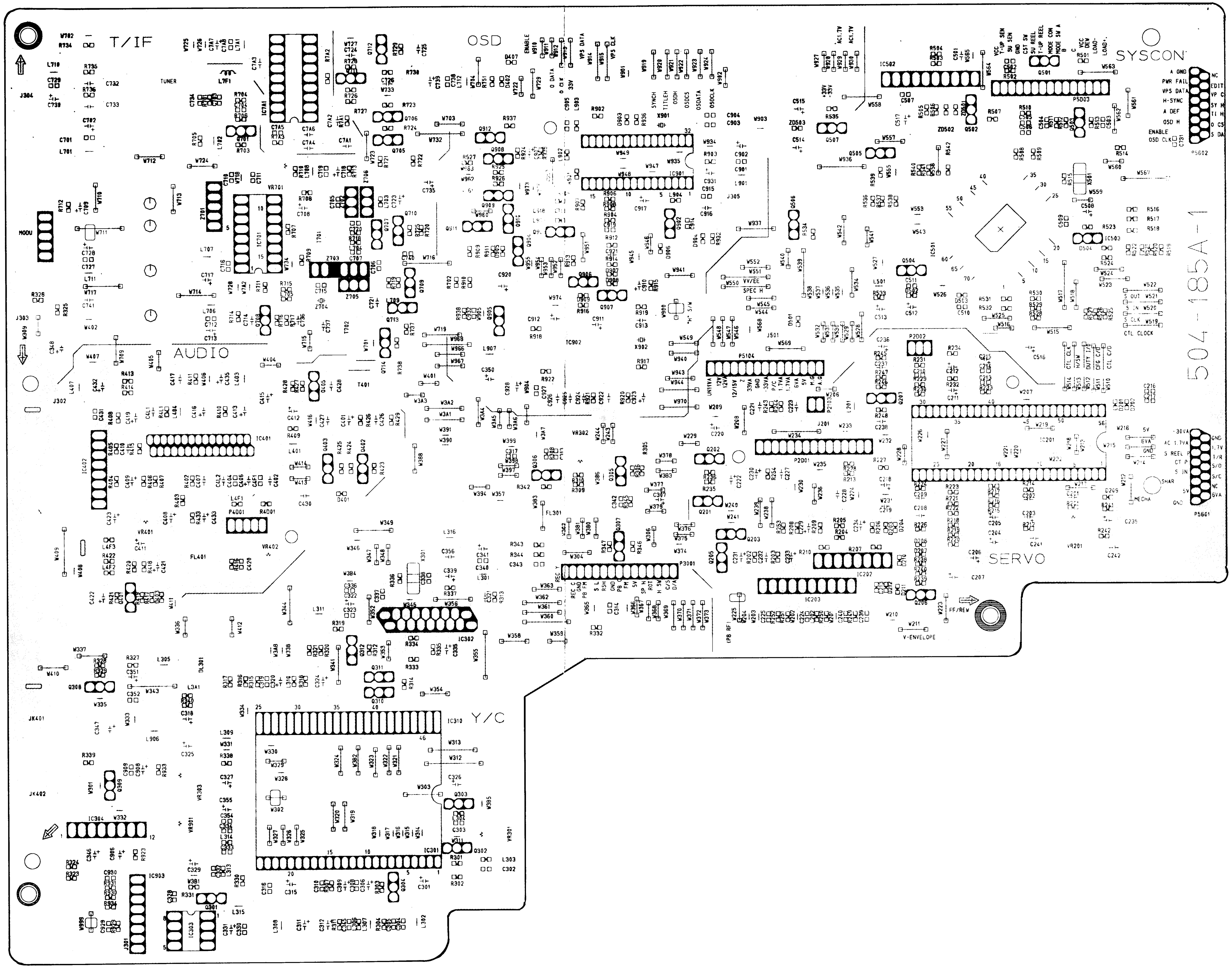
CAPSTAN MOTOR ASSY
M
N.C
C.FG (-)
5VA
C.FG (+)
12. 15V
GND
C.CTL
F/R
C.M.GND
D.CTL
12V
D.M.GND
D.FG (+)
D.FG (-)
D.PG (+)
DRUM MOTOR ASSY
R1 REC
R1 PB
L1 REC
L1 PB
R2 REC
R2 PLAY
L2 REC
L2 PLAY
CTL HEAD
AUDIO HEAD
F/E HEAD
FULL ERASE
GND
LOADING MOTOR
P3103
L.MOTOR
MODE SW S1
MODE SW S2
MODE SW S3
HOUSING
VA… ASSY
P4001
P5004
M.GND
DIGITAL GND
5V
PWR
ANALOG GND
33VA
J-SEARCH'H'
12. 15V
12VA
UNREG 11VA
POWER
P1501
M.GND
DIGITAL GND
5V
6VA
AC 17VA
AC 17VA
PWR.CTL
33VA
ANALOG.GND
33VA
J-SEARCH'H'
12. 15V
12VA
12V
UNREG 11VA
P3103
AC 15V
AC 15V
G.N.D
G.N.D
AC 9V
AC 9V
P1303
AC 15V
AC 15V
G.N.D
G.N.D
G.N.D
AC 9V
AC 9V
P3001
D/A CONVERT
C.SYNC
H/SW 25
ROTARY SW
SP'H'
5V
FM
PB COLOR
GND
REC.START 'H'
SLOW 'L'
PB FM
GND
REC COLOR
REC Y
P3702
TEXT 'L'
TEXT V-IN
G.N.D
G.N.D
4.43 MHz
VPS DATA
VPS CLOCK
REG 12V
REG 5VA
P3703
TU/LINE
G.N.D
TU LINE V-IN
CTL PULSE
S.OUT
S.CLOCK
SHARPNESS
NC
5V
6VA
GND
P5602
PWR
EDIT 'H'
VPS DATA
VPS CLOCK
OSD DATA
OSD CLOCK
G.N.D
G.N.D
PRE-AMP
P0001
R1 REC
R1 PB
L1 REC
L1 PB
R2 REC
R2 PB
L2 REC
L2 PLAY
P0302
D/A CONVERT
C.SYNC
H/SW 25
ROTARY SW
SP'H'
5V
FM
PB COLOR
GND
REC.START'H'
SLOW 'L'
PB FM
GND
REC COLOR
REC Y
VPT-BOARD
P8301
TEXT 'L'
TEXT V-IN
G.N.D
G.N.D
4.43MHz
VPS DATA
VPS CLOCK
REG 12V
REG 5VA
P8302
TU/LINE V-IN
G.N.D
T/LINE V-OUT
G.N.D
KEYBOARD
P6604
RETURN 2
RETURN 2
RETURN 1
RETURN 3
11G
11G
10G
10G
P6603
RETURN 2
RETURN 2
RETURN 1
RETURN 3
11G
TIMER
1
2
3
4
5
A
B
C
D
E
F
G
H

PRINTED CIRCUIT BOARD DIAGRAMS

1. Main P.C.Board


SYSCON
OSD
504-185A-1
T/IF
TUNER
AUDIO
SERVO
Y/C
IC501
IC502
IC503
IC201
IC202
IC203
IC901
IC902
IC401
IC402
IC301
IC303
IC304
IC310
IC741
IC903
P5D03
P5104
P2001
P3001
PS601
PS602
JK401
JK402
FL301
X501
X901
X902
VR201
VR301
VR302
VR401
VR701
VR901
5
4
3
2
1
A
B
C
D
E
F
G
H

(Component Side)


T/IF
OSD
SYSCON
AUDIO
Y/C
SERVO
504-185A-1
TUNER
MODU
IC701
IC401
IC402
IC901
IC502
IC201
IC202
IC203
IC310
IC301
IC302
IC303
IC304
IC903
P5104
P2001
P3001
P5602
P5601
P4001
FF/REW
V-ENVELOPE
5
4
3
2
1
A
B
C
D
E
F
G
H

(Solder Side)

5

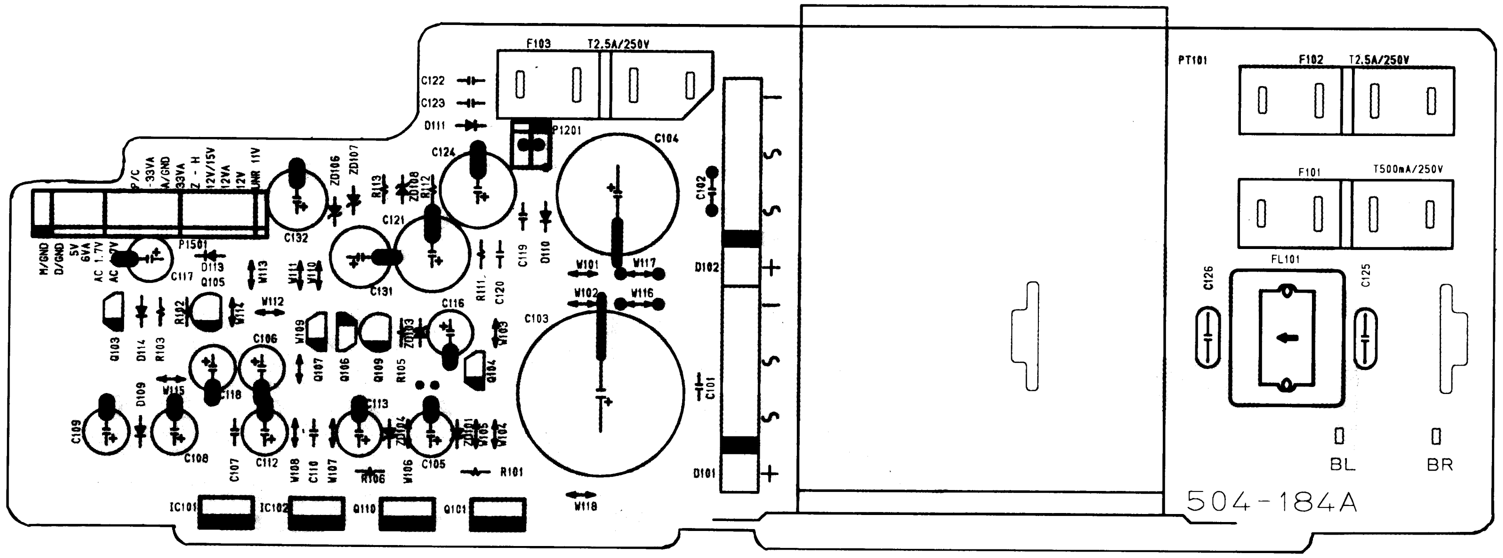
4

3

2

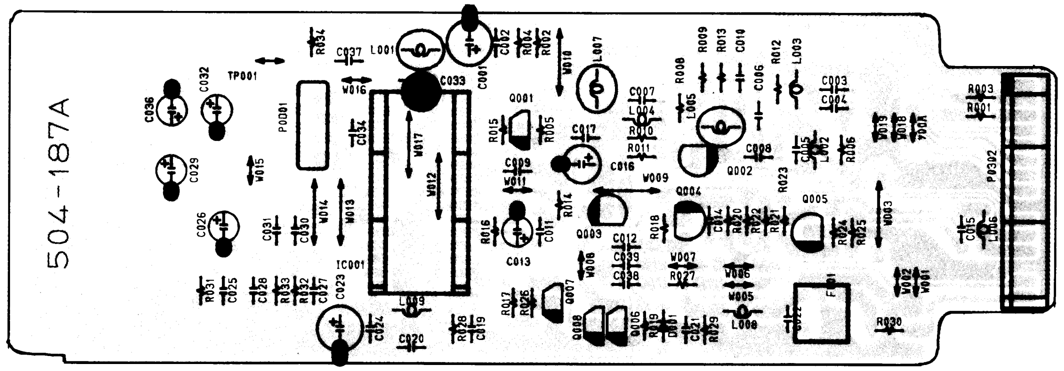
1

2. Power P.C.Board


F103
T2.5A/250V
PT101
F102
T2.5A/250V
F101
T500mA/250V
FL101
C104
C103
P1201
P1501
D101
D102
IC101
IC102
Q110
Q101
BL
BR
504-184A

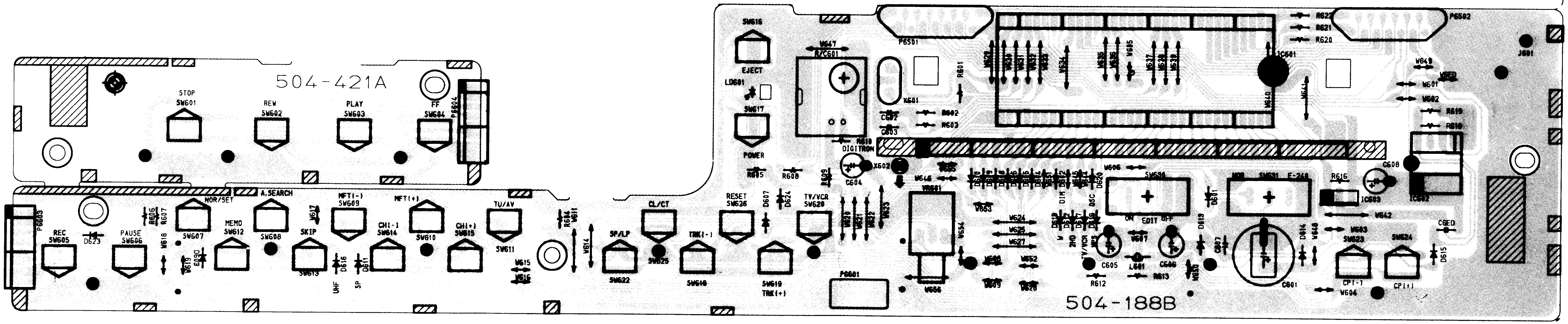
(Component Side)

3. Pre-Amp P.C.Board


504-187A
TP001
P0001
IC001
P0302

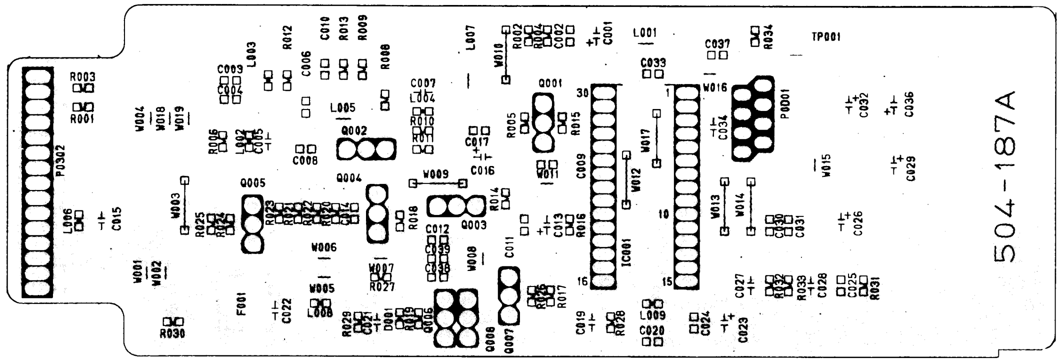
(Component Side)

4. Timer/Key Board P.C.Board

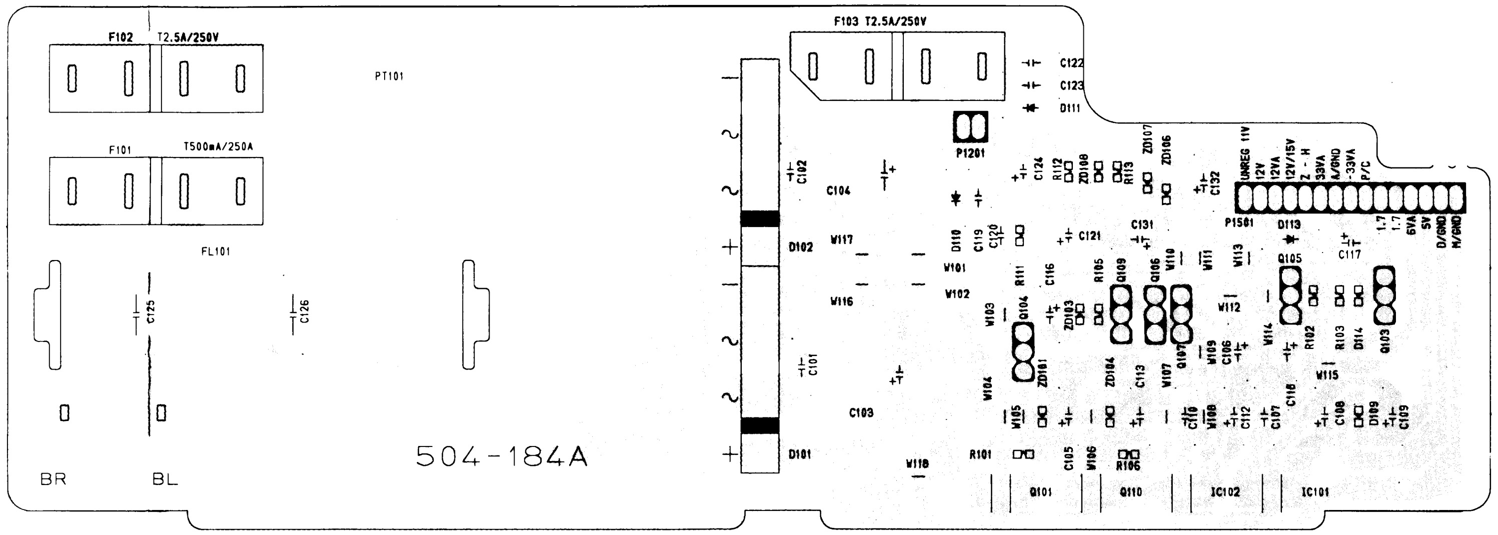

504-421A
STOP
SW601
REW
SW602
PLAY
SW603
FF
SW604
P6604
REC
SW605
PAUSE
SW606
NOR/SET
SW607
MEMO
SW612
A.SEARCH
SW608
SKIP
SW613
MFT(-)
SW609
CH(-)
SW614
MFT(+)
SW610
CH(+)
SW615
TU/AV
SW611
SP/LP
SW622
CL/CT
SW625
TRK(-)
SW618
RESET
SW626
TV/VCR
SW620
SW619
TRK(+)
SW616
EJECT
SW617
POWER
DIGITRON
P6501
P6502
IC601
P6601
J601
CP(-)
SW623
CP(+)
SW624
504-188B

(Component Side)

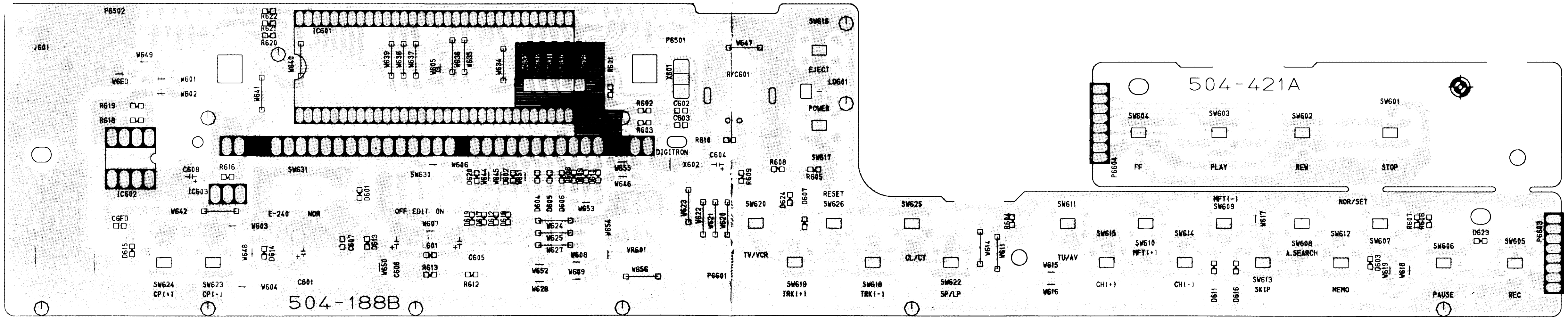
A B C D E F G H


504-187A
P0302
PD001
TP001
IC001

(Solder Side)


504-184A
F102
T2.5A/250V
F101
T500mA/250A
F103 T2.5A/250V
PT101
FL101
BR
BL
P1201
P1501
D101
D102
Q101
Q110
IC102
IC101

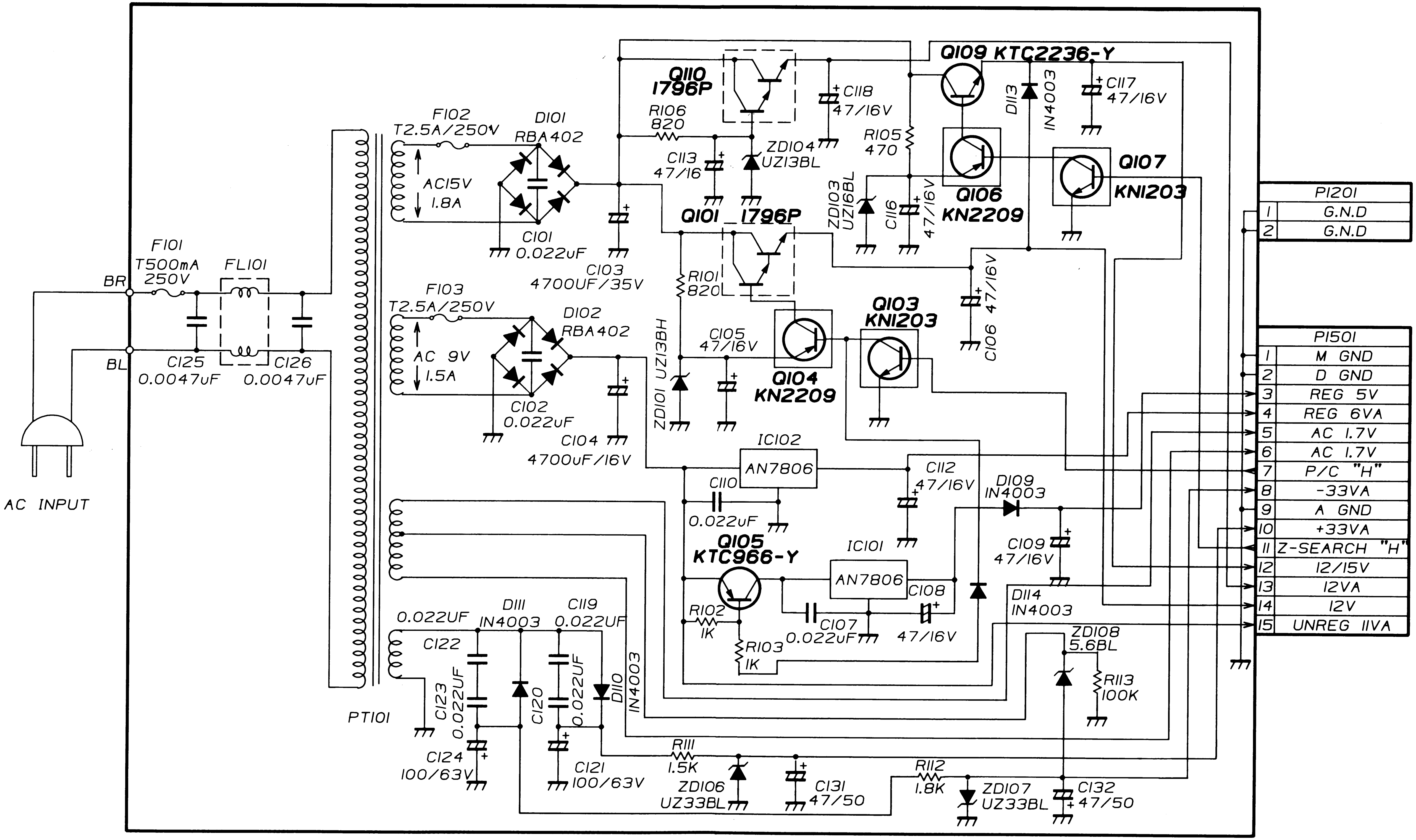
(Solder Side)


504-188B
504-421A
P6502
J601
IC601
IC602
IC603
P6501
X601
DIGITRON
X602
SW616
EJECT
LD601
POWER
SW617
RESET
SW626
SW620
TV/VCR
SW619
TRK(+)
SW610
TRK(-)
SW625
CL/CT
SW622
SP/LP
SW611
TU/AV
SW615
CH(+)
SW610
MFT(+)
SW614
CH(-)
MFT(-)
SW609
SW613
SKIP
SW608
A.SEARCH
SW612
MEMO
NOR/SET
SW607
SW606
PAUSE
SW605
REC
SW624
CP(+)
SW623
CP(-)
SW631
SW630
OFF EDIT ON
E-240
NOR
VR601
P6601
P6603
P6604
SW604
FF
SW603
PLAY
SW602
REW
SW601
STOP

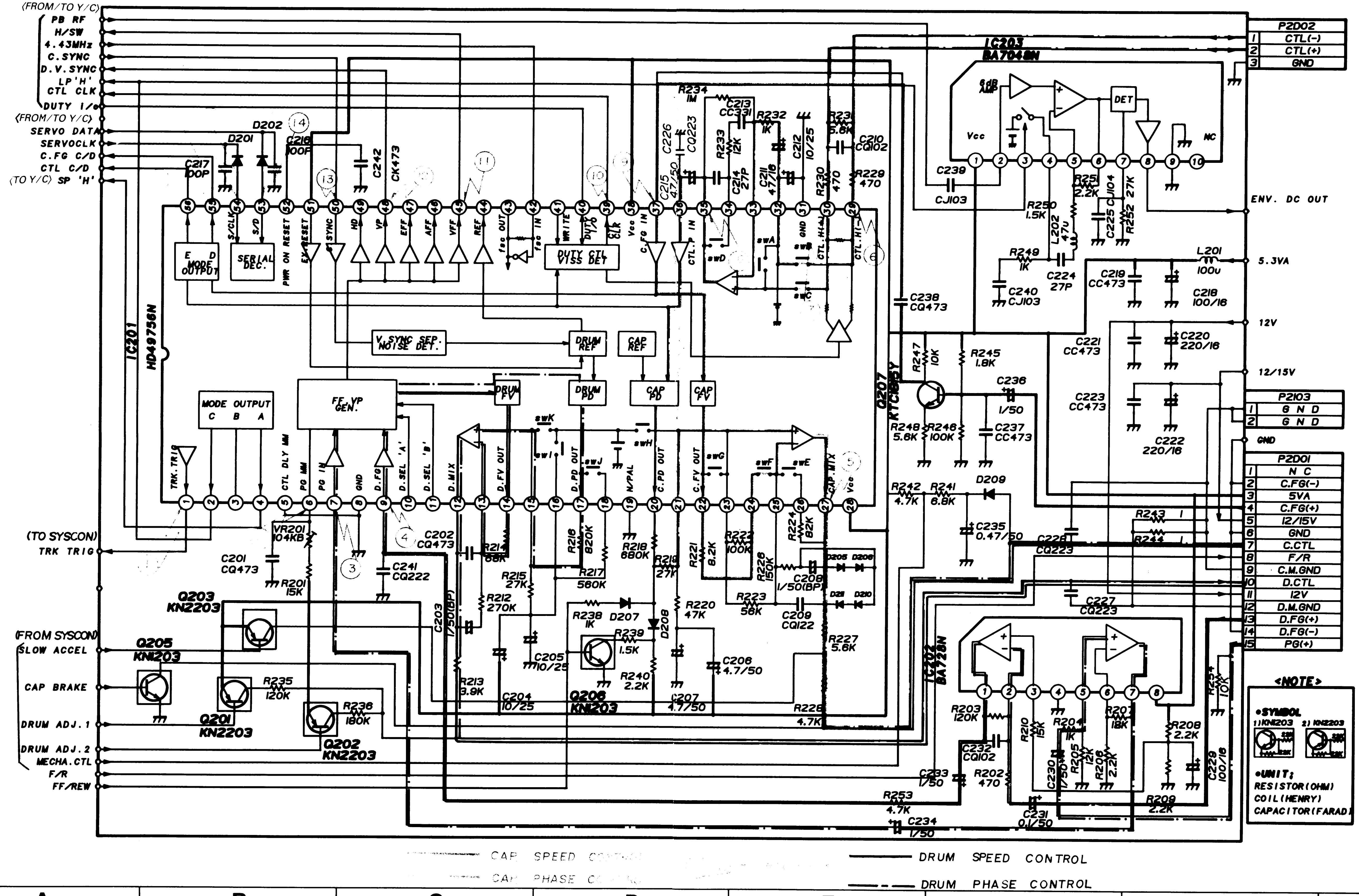
(Solder Side)

CIRCUIT DIAGRAMS

1. Power Circuit Diagram

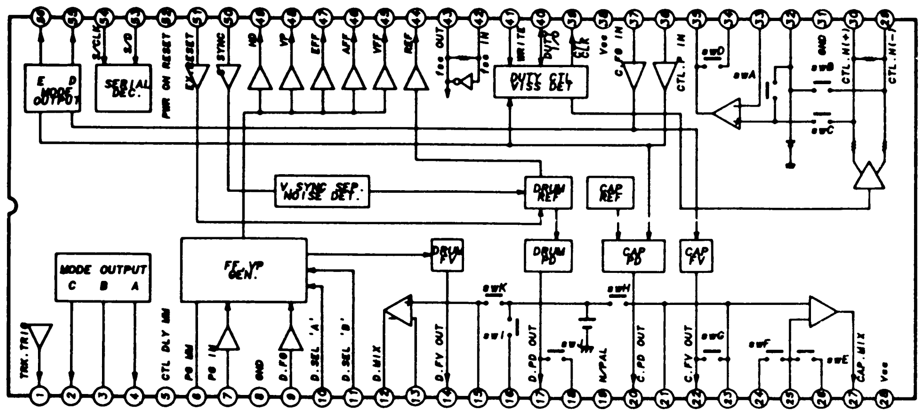

AC INPUT
BR
BL
F101
T500mA
250V
FL101
C125
0.0047uF
C126
0.0047uF
PT101
F102
T2.5A/250V
AC15V
1.8A
D101
RBA402
C101
0.022uF
C103
4700UF/35V
F103
T2.5A/250V
AC 9V
1.5A
D102
RBA402
C102
0.022uF
C104
4700uF/16V
Q110
1796P
R106
820
C113
47/16
ZD104
UZ13BL
C118
47/16V
Q101 1796P
R101
820
ZD101 UZ13BH
C105
47/16V
Q104
KN2209
Q103
KN1203
Q109 KTC2236-Y
D113
IN4003
C117
47/16V
R105
470
ZD103
UZ16BL
C116
47/16V
Q106
KN2209
Q107
KN1203
C106 47/16V
IC102
AN7806
C110
0.022uF
C112
47/16V
D109
IN4003
C109
47/16V
Q105
KTC966-Y
IC101
AN7806
C108
47/16V
R102
1K
R103
1K
C107
0.022uF
D114
IN4003
ZD108
5.6BL
R113
100K
0.022UF
C122
C123
0.022UF
C124
100/63V
D111
IN4003
C119
0.022UF
C120
0.022UF
C121
100/63V
D110
IN4003
R111
1.5K
ZD106
UZ33BL
C131
47/50
R112
1.8K
ZD107
UZ33BL
C132
47/50
P1201
1 G.N.D
2 G.N.D
P1501
1 M GND
2 D GND
3 REG 5V
4 REG 6VA
5 AC 1.7V
6 AC 1.7V
7 P/C "H"
8 -33VA
9 A GND
10 +33VA
11 Z-SEARCH "H"
12 12/15V
13 12VA
14 12V
15 UNREG 11VA
5
4
3
2
1
A
B
C
D
E
F
G
H

2. Servo Circuit Diagram


(FROM/TO Y/C)
PB RF
H/SW
4.43MHz
C.SYNC
D.V.SYNC
LP'H'
CTL CLK
DUTY I/O
(FROM/TO Y/C)
SERVO DATA
SERVOCLK
C.FG C/D
CTL C/D
(TO Y/C) SP 'H'
(TO SYSCON)
TRK TRIG
(FROM SYSCON)
SLOW ACCEL
CAP BRAKE
DRUM ADJ.1
DRUM ADJ.2
MECHA.CTL
F/R
FF/REW
IC201
HD49756N
IC203
BA7048N
IC202
BA728N
Q207
KTC1815Y
Q203
KN2203
Q205
KN1203
Q201
KN2203
Q202
KN2203
Q206
KN1203
E D MODE OUTPUT
SERIAL DEC.
V.SYNC SEP. NOISE DET.
DRUM REF
CAP REF
DUTY CTL VISS DET
FF, VP GEN.
MODE OUTPUT C B A
DRUM FV
DRUM PD
CAP PD
CAP FV
6dB AMP
DET
Vcc
NC
P2D02
1 CTL(-)
2 CTL(+)
3 GND
ENV. DC OUT
5.3VA
12V
12/15V
P2103
1 GND
2 GND
GND
P2D01
1 N C
2 C.FG(-)
3 5VA
4 C.FG(+)
5 12/15V
6 GND
7 C.CTL
8 F/R
9 C.M.GND
10 D.CTL
11 12V
12 D.M.GND
13 D.FG(+)
14 D.FG(-)
15 PG(+)
<NOTE>
•SYMBOL
1) KN1203 2) KN2203
•UNIT;
RESISTOR(OHM)
COIL(HENRY)
CAPACITOR(FARAD)
CAP SPEED CONTROL
CAP PHASE CONTROL
DRUM SPEED CONTROL
DRUM PHASE CONTROL
1 2 3 4 5
A B C D E F G H

SERVO IC AND TR VOLTAGE SHEET

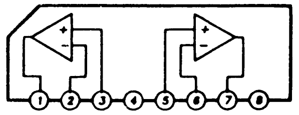
IC201
HD49756N


56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
S/CLK
S/D
PWR ON RESET
EX RESET
SYNC
HD
VP
EFF
AFF
VFF
REF
f00 OUT
f00 IN
WRITE
DUTY/D
CLK
Vcc
C.FG IN
CTL. IN
swD
swA
swB
swC
GND
CTL.HI(+)
CTL.HI(−)
E D MODE OUTPUT
SERIAL DEC.
DUTY CTL VISS DET
V.SYNC SEP. NOISE DET.
DRUM REF
CAP REF
MODE OUTPUT C B A
FF, VP GEN.
DRUM FV
DRUM PD
CAP PD
CAP FV
swK
swH
swI
swJ
swG
swF
swE
TRK.TRIG
CTL DLY
PG MM
PG IN
GND
D.PG
D.SEL 'A'
D.SEL 'B'
D.MIX
D.FV OUT
D.PD OUT
N/PAL
C.PD OUT
C.FV OUT
CAP.MIX
Vcc
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

RECORD MODE	5	2.5	0.8	0.7	5	5	0.4	0	0	2.5	0	2.5	2.8	2.8	2.8	5	5	3.8	5	2.5	2.5	2.5	2.5	2.5	2.5	0	2.7	2.1
PLAYBACK MODE	2.0	2.5	0.9	0.7	5	5	0.4	0	0	2.5	0	2.5	2.8	2.8	2.8	5	5	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5

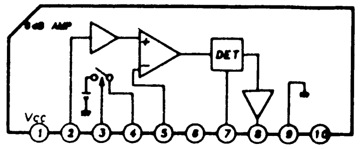
PLAYBACK MODE	3.8	0	0	5	0	0	2.2	0	2.7	2.7	2.7	1.3	2.5	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	5
RECORD MODE	3.8	0	0	5	0	0.4	2.2	0	2.7	2.7	2.7	1.3	2.5	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	5

IC202
BA728N



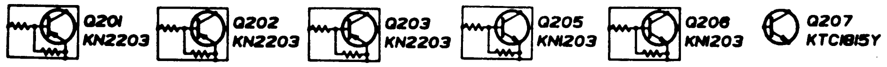
PLAYBACK MODE	2.3	2.2	2.5	0	0	0	0	5
RECORD MODE	2.3	2.2	2.5	0	0	0	0	5

IC203
BA7048N


6dB AMP
DET
Vcc
1
2
3
4
5
6
7
8
9
10

PLAYBACK MODE	5	1.8	5	0	2.4	2.5	2.4	4.5	0	0
RECORD MODE	5	1.8	5	0	0	2.5	0.2	0.2	0	0

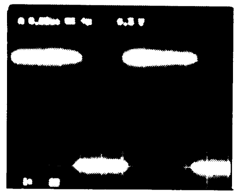
Servo TR Voltage Sheet


Q201
KN2203
Q202
KN2203
Q203
KN2203
Q205
KN1203
Q206
KN1203
Q207
KTC1815Y

NODE	MODE	Q201	Q202	Q203	Q205	Q206	Q207
EMITTER	PLAYBACK	5	5	5	0	0	3.4
	RECORD	5	5	5	0	0	3.4
BASE	PLAYBACK	5	5	5	0	0	4.1
	RECORD	5	5	5	0	0	4.1
COLLECTOR	PLAYBACK	1.5	1.5	2.7	2.7	5	3.4
	RECORD	1.5	1.5	2.7	2.7	5	3.4

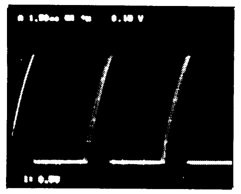
* Servo Oscilloscope Waveform

①



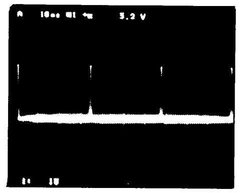
IC201 Pin①
TRK TRIGGER

②



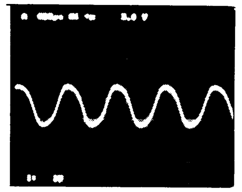
IC201 Pin⑥
PG M.M

③



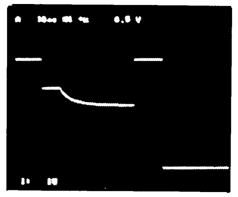
IC201 Pin⑦
DRUM P.G

④



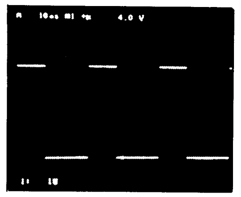
IC201 Pin⑨
DRUM F.G

⑤



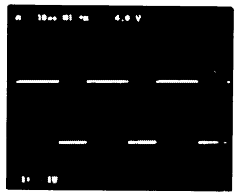
IC201 Pin㉗
SLOW CONTROL

⑥



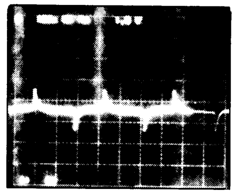
IC201 Pin㉙
REC CTL

⑦



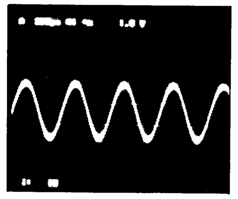
IC201 Pin㉚
REC CTOL

⑧



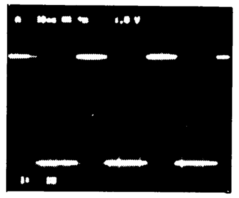
IC201 Pin㉟
REC CTL

⑨



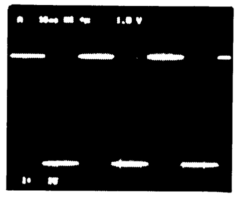
IC201 Pin㊲
CAPSTAN F.G

⑩



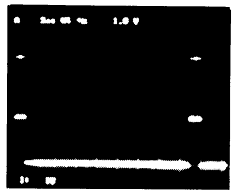
IC201 Pin㊴
CLOCK CTL

⑪



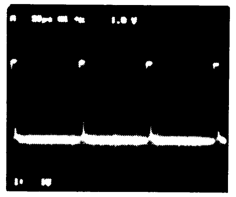
IC201 Pin㊺
SW30

⑫



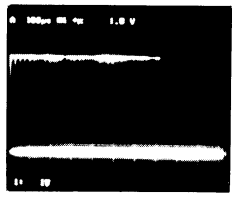
IC201 Pin㊽
DV. SYNC

⑬



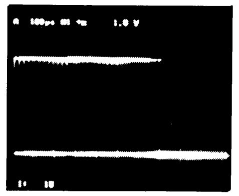
IC201 Pin㊿
COMPOSITE SYNC

⑭



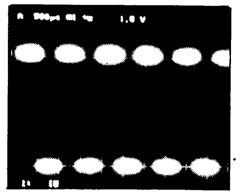
IC201 Pin(53)90
SERIAL DATA

⑮



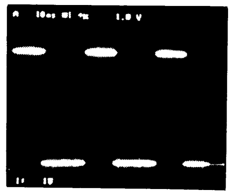
IC201 Pin(54)
SERIAL CLOCK

⑯



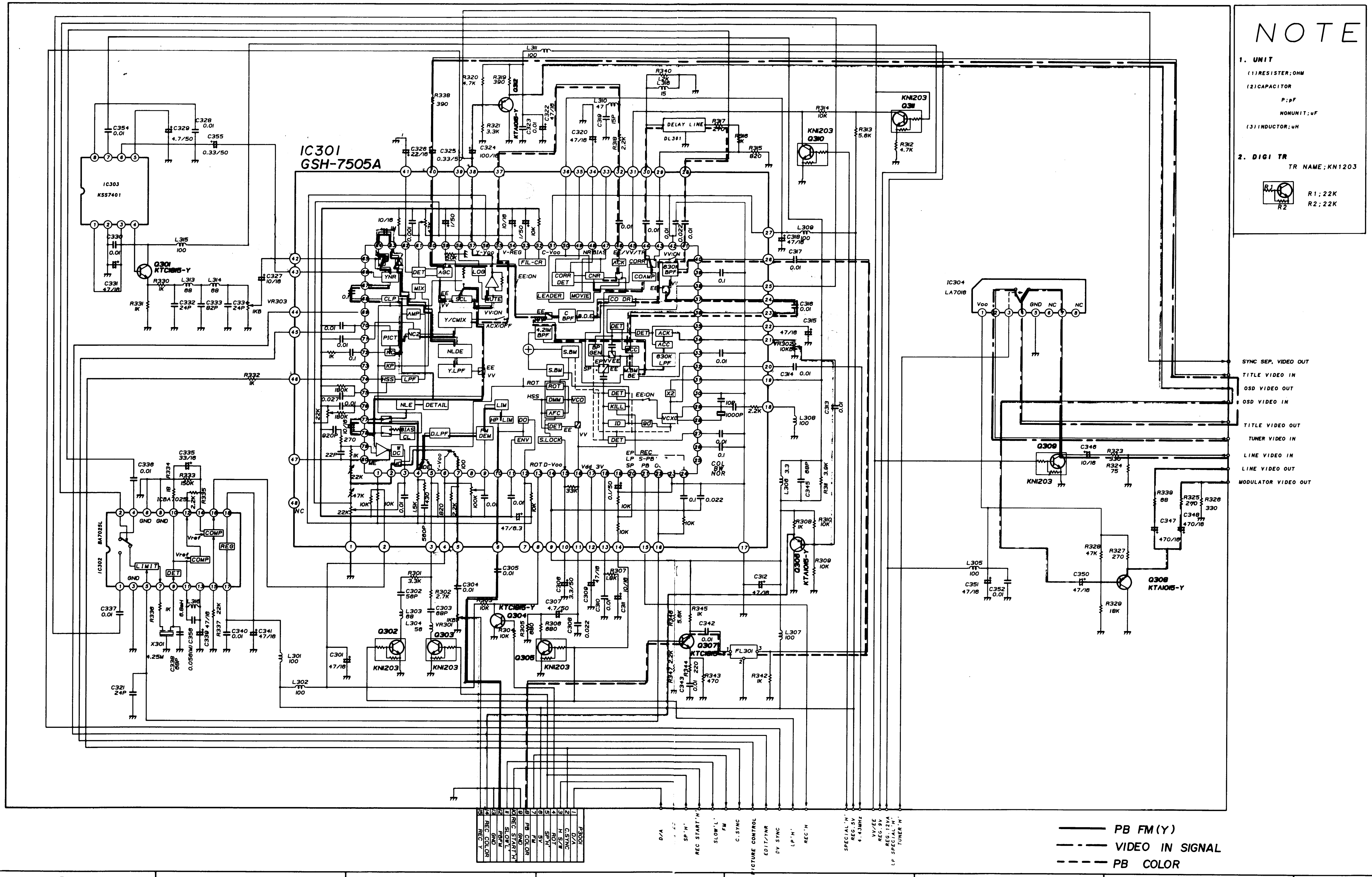
IC201 Pin(55)
CFG C.D

⑰



IC201 Pin(56)
CTL C.D

3. Y/C Circuit Diagram


IC301
GSH-7505A
IC303
KSS7401
IC302
BA7025L
IC304
LA7016
Q301 KTC1815-Y
Q302 KN1203
Q303 KN1203
Q304 KTC1815-Y
Q305 KN1203
Q306 KTA1015-Y
Q307 KTC1815-Y
Q308 KTA1015-Y
Q309 KN1203
Q310 KN1203
Q311 KN1203
Q312 KTA1015-Y
DELAY LINE
DL301
FL301
X301 4.25M
VR301
VR302
VR303
L311 100
R340 12K
SYNC SEP. VIDEO OUT
TITLE VIDEO IN
OSD VIDEO OUT
OSD VIDEO IN
TITLE VIDEO OUT
TUNER VIDEO IN
LINE VIDEO IN
LINE VIDEO OUT
MODULATOR VIDEO OUT
P3001
1 D/A
2 C.SYNC
3 H S/W
4 ROT
5 SP'H'
6 5V
7 FM
8 PB COLOR
9 GND
10 REC START'H'
11 SLOW'L'
12 PBFM
13 GND
14 REC COLOR
15 REC Y
D/A
SP'H'
REC START'H'
SLOW'L'
FM
C.SYNC
PICTURE CONTROL
EDIT/YNR
DV SYNC
LP'H'
REC'H'
SPECIAL'H'
REG.5V
4.43MHz
VV/EE
REG.9V
REG.12VA
LP SPECIAL'H'
TUNER'H'
A
B
C
D
E
F
G
H
1
2
3
4
5

NOTE

1. UNIT

(1)RESISTER;OHM

(2)CAPACITOR

P;pF

NONUNIT;uF

(3)INDUCTOR;uH

2. DIGI TR

TR NAME;KN1203

R1;22K

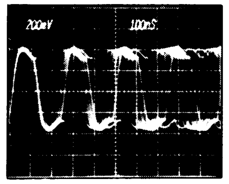
R2;22K

——— PB FM(Y)

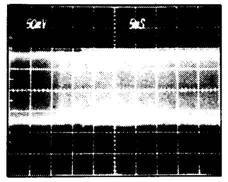
—·—·— VIDEO IN SIGNAL

– – – – PB COLOR

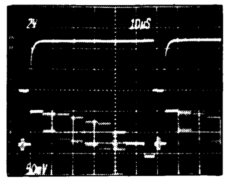
* Y/C Waveform

①


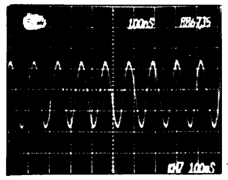
IC301 PIN⑤
REC, Y
200mV/100nS

②


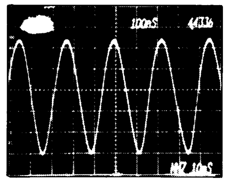
IC301 PIN⑥
PB FM
50mV/5mS

③


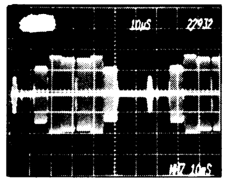
IC301 PIN⑯
B.G.P
2V/10μS

④


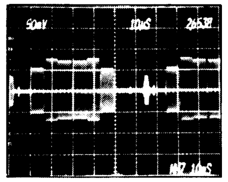
IC301 PIN⑲
EE, PLAYBACK

⑤


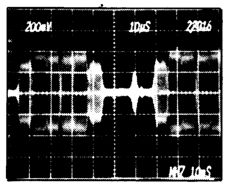
IC301 PIN⑳
fsc(PLAYBACK)
100mV/100nS

⑥


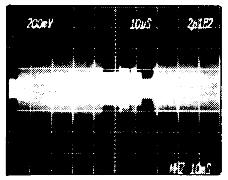
IC301 PIN㉑
REC COLOR
200mV/10μS

⑦


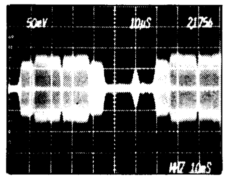
IC301 PIN㉓
ACC IN (PLAYBACK)
50mV/10μS

⑦


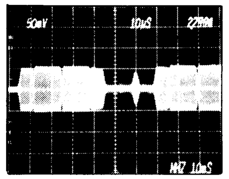
IC301 PIN㉓
ACC IN(RECORD)
200mV/10μS

⑧


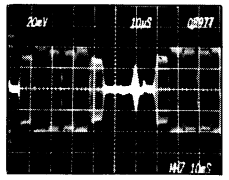
IC301 PIN㉖
PB COLOR
200mV/10μS

⑨


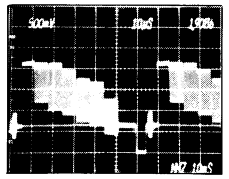
IC301 PIN㉘
COMB, OUTPUT
50mV/10μS

⑩


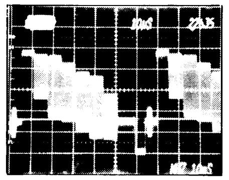
IC301 PIN㉚
COMB, INPUT
50mV/10μS

⑪


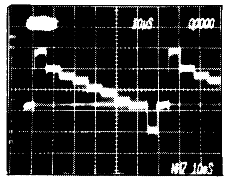
IC301 PIN㊲
COLOR INPUT
20mV/10μS

⑫


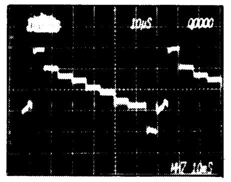
IC301 PIN㊳
VIDEO OUTPUT
500mV/10μS

⑬


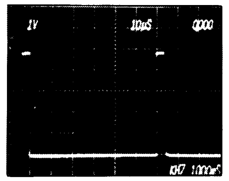
IC301 PIN㊵
VIDEO
INPUT(RECORD)
200mV/10μS

⑭


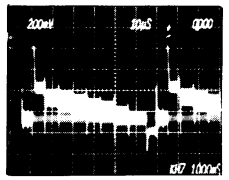
IC301 PIN㊸
YNR(DOC)
INPUT(PLAYBACK)
100mV/10μS

⑮


IC301 PIN㊷
YNR(DOC)
OUTPUT(PLAYBACK)

⑯


100mV/10μS
IC301 PIN㊻
SYNC SEPA OUTPUT
1V/10μS

⑰


IC301 PIN㊼
MEIN-EMPH,
OUTPUT(RECORD)
200mV/100μS

* Y/C IC Voltage Sheet(SP mode)

IC NO.	IC301		IC302		IC303		IC304	
Mode / Pin No.	REC	PB	REC	PB	REC	PB	REC	PB
1	0	0	3.6	3.6	9.0	9.0	2.0	1.4
2	2.7	2.7	0	4.9	0	0	7.6	0
3	0	1.26	0	0	9.0	9.0		2.5
4	4.9	4.9	3.6	3.6	3.3	3.30		0
5	3.6	4.0	4.5	4.5	3.2	3.2	7.0	0.9
6	4.0	4.0	0	0	2.4	2.4		0
7	4.9	4.7	4.5	4.5	1.7	1.7		7.7
8	2.5	2.5	0	0	5.0	5.0		11.7
9	5.0	5.0	3.0	3.0				
10	3.2	3.2	0	0				
11	3.2	3.2	3.6	3.5				
12	3.0	3.0	0	0.9				
13	0.5	2.3	3.5	3.5				
14	0	0	0	1.0				
15	5.0	0	0	0				
16	4.5	4.5	2.7	2.7				
17	0	0	5	5				
18	0	0	5	5				
19	5.0	5.0						
20	2.2	2.2						
21	2.2	2.3						
22	2.2	2.2						
23	2.5	2.5						
24	1.8	2.0						
25	1.8	1.8						
26	3.9	3.9						
27	4.9	4.9						
28	0	0						
29	0	0						
30	0	0						
31	5.0	3.0						
32	3.3	3.3						
33	3.5	3.5						
34	2.4	2.4						
35	1.8	3.5						
36	4.9	4.9						
37	3.3	3.3						
38	2.2	2.1						
39	0	0						
40	2.7	2.6						
41	2.0	1.6						
42	3.0	3.0						
43	1.8	1.8						
44	0	0						
45	2.7	2.7						
46	0.4	0.4						
47	2.4	2.6						
48	0	0						

* Y/C TR Voltage Sheet(SP mode)

Mode / TR NO	REC			PLAY		
	E	C	B	E	C	B
Q301	2.6	9.0	3.3	2.6	9.0	3.3
Q302	0	1.6	0	0	0.1	0
Q303	0	0	4.9	0	0	4.9
Q304	0	2.5	0.3	0	2.5	2.3
Q305						
Q306	3.2	0	2.5	3.2	0	2.5
Q307	0.7	3.5	1.4	0.7	3.5	1.4
Q308	7.0	0	6.3	7.0	0	6.3
Q309	0	7.6	0	0	06	4.9
Q310	0	5	0	0	3.0	0
Q311	0	5.0	0	2.6	2.6	4.9
Q312	5.6	0	5	5.6	0	5

4. Pre-Amp Circuit Diagram

5

4

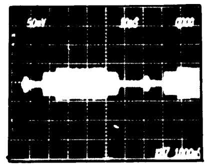
3

2

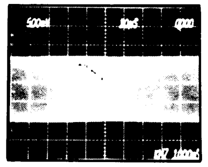
1

*** Pre-Amp Waveform**

①



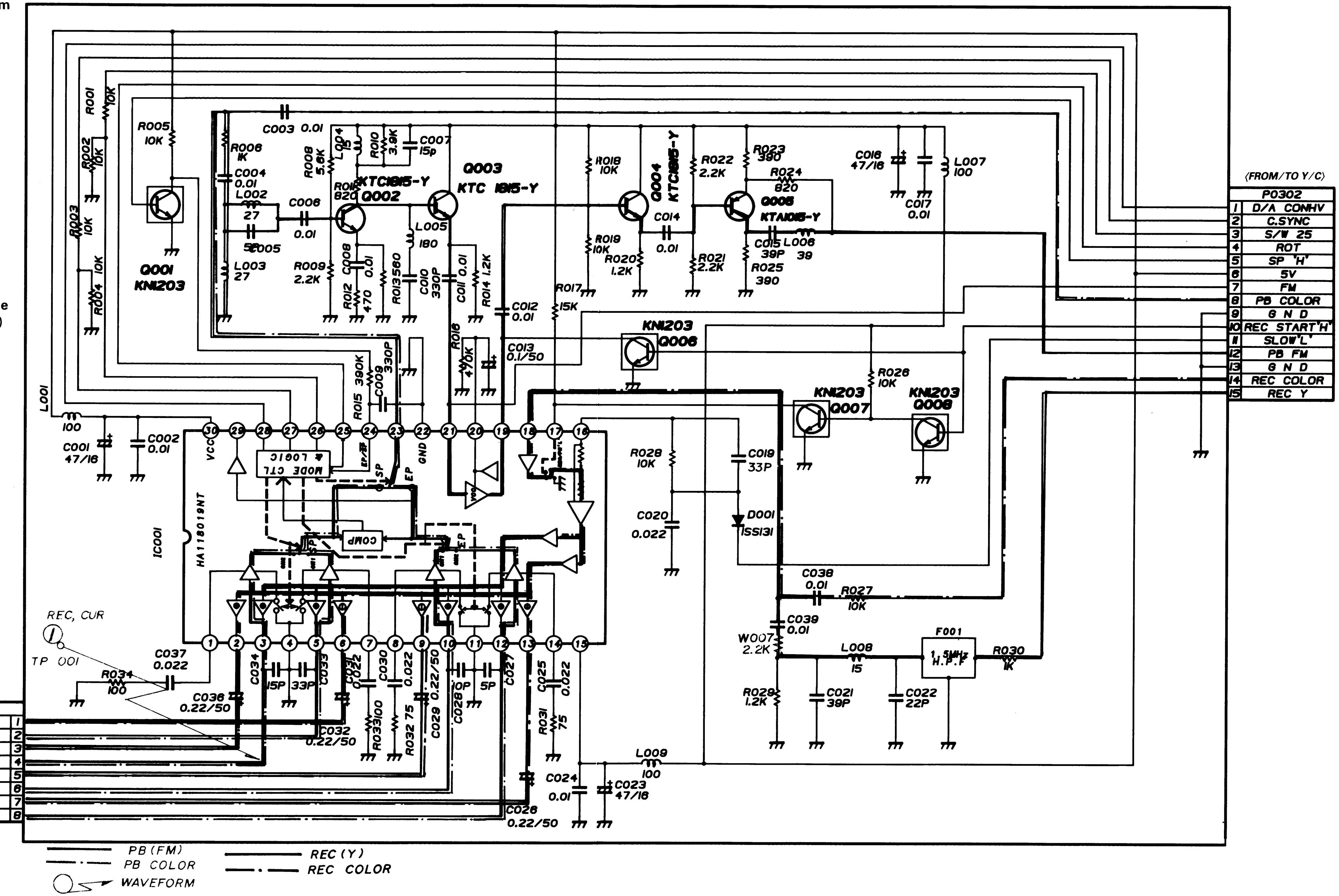
PRE-AMP TP001
RECORD COLOR
50mV/100 μ S



PRE-AMP TP001
RECORD Y
500mV/100 μ S

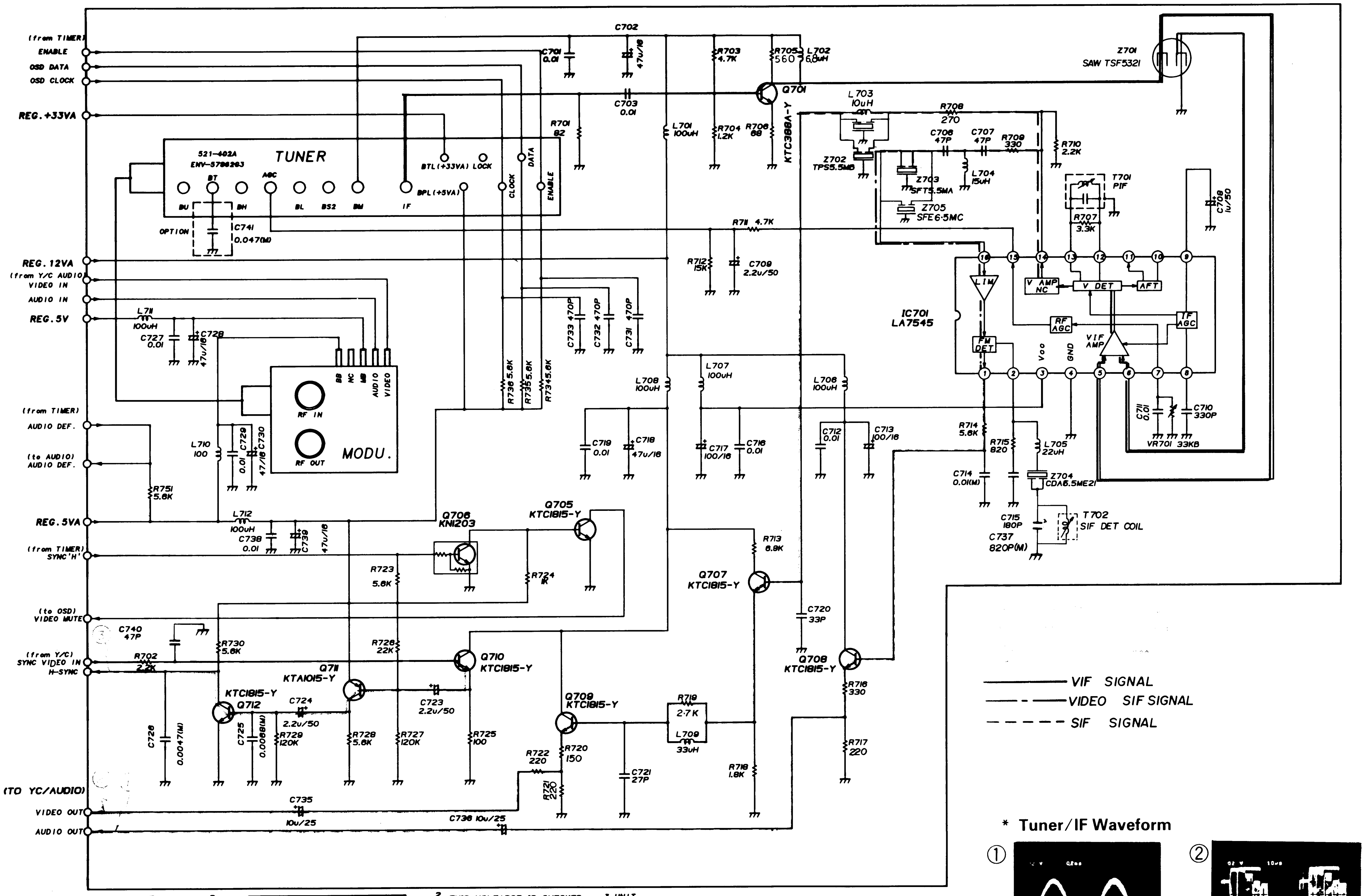
*** Pre-Amp Voltage Sheet (IC001)**

Mode / Pin No.	PB	REC
1	2.3	4.2
2	0	2.2
3	0.7	2.2
4	0	0
5	0.7	2.2
6	0	2.2
7	2.2	4.2
8	4.2	4.2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	4.2	4.2
15	5	4.8
16	2.7	2.7
17	0	3.9
18	4.2	4.0
19	2.5	0.7
20	2.2	0.1
21	3.5	3.1
22	0	0
23	3	4.3
24	0.7	0.7
25	2.3	2.3
26	1.8	1.8
27	0.1	0.1
28	4.3	4.3
29	2	3.9
30	5	5


(FROM/TO Y/C)
P0302
1 D/A CONHV
2 C.SYNC
3 S/W 25
4 ROT
5 SP 'H'
6 5V
7 FM
8 PB COLOR
9 G N D
10 REC START'H'
11 SLOW'L'
12 PB FM
13 G N D
14 REC COLOR
15 REC Y
PODOI
1 RI REC
2 RI PLAY
3 LI REC
4 LI PLAY
5 R2 REC
6 R2 PLAY
7 L2 REC
8 L2 PLAY
R001 10K
R002 10K
R003 10K
R004 10K
R005 10K
R006 1K
C003 0.01
C004 0.01
L002 27
C005 5
L003 27
C006 0.01
R008 5.6K
L004 15
R010 3.9K
C007 15p
R011 820
KTC1815-Y Q002
R009 2.2K
C008 0.01
R012 470
R013 560
L005 180
C010 330P
C011 0.01
R014 1.2K
Q003 KTC 1815-Y
Q001 KN1203
R018 10K
R019 10K
R020 1.2K
Q004 KTC1815-Y
C014 0.01
R022 2.2K
R021 2.2K
R023 390
R024 820
Q005 KTA1015-Y
C015 39P
L006 39
R025 390
C016 47/16
C017 0.01
L007 100
R017 15K
C012 0.01
C013 0.1/50
R016 470K
KN1203 Q006
R026 10K
KN1203 Q007
KN1203 Q008
R015 390K
C009 330P
L001 100
C001 47/16
C002 0.01
VCC
MODE CTL & LOGIC
EP/SP
SP
EP
GND
COMP
IC001
HA11801 9NT
R028 10K
C020 0.022
C019 33P
D001 1SS131
C038 0.01
R027 10K
C039 0.01
W007 2.2K
L008 15
F001 1.5MHz H.P.F
R030 1K
R029 1.2K
C021 39P
C022 22P
L009 100
C024 0.01
C023 47/16
C026 0.22/50
REC, CUR
①
TP 001
R034 100
C037 0.022
C036 0.22/50
C034
15P
33P
C033
C032 0.22/50
C031 0.022
C030
0.022
R033 100
R032 75
C029 0.22/50
C028
10P
5P
C027
C025 0.022
R031 75
PB (FM)
PB COLOR
WAVEFORM
REC (Y)
REC COLOR

A B C D E F G H

7. Tuner/IF Circuit Diagram

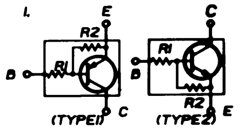

(from TIMER)
ENABLE
OSD DATA
OSD CLOCK
REG.+33VA
REG.12VA
(from Y/C AUDIO)
VIDEO IN
AUDIO IN
REG.5V
(from TIMER)
AUDIO DEF.
(to AUDIO)
AUDIO DEF.
REG.5VA
(from TIMER)
SYNC'H'
(to OSD)
VIDEO MUTE
(from Y/C)
SYNC VIDEO IN
H-SYNC
(TO YC/AUDIO)
VIDEO OUT
AUDIO OUT
TUNER
521-402A
ENV-5786263
BT
AGC
BU
BH
BL
BS2
BM
IF
BTL(+33VA)
LOCK
BPL(+5VA)
CLOCK
DATA
ENABLE
OPTION
C741 0.047(M)
MODU.
RF IN
RF OUT
BB
NC
MB
AUDIO
VIDEO
C702
C701 0.01
47u/16
C703 0.01
R701 82
R703 4.7K
R705 560
L702 6.8uH
R704 1.2K
R706 68
L701 100uH
Q701
KTC388A-Y
Z701
SAW TSF5321
L703 10uH
Z702 TPS5.5MB
Z703 SFT5.5MA
Z705 SFE6.5MC
R708 270
C706 47P
C707 47P
R709 330
L704 15uH
R710 2.2K
T701 PIF
R707 3.3K
C708 1u/50
R711 4.7K
R712 15K
C709 2.2u/50
IC701 LA7545
LIM
FM DET
V AMP NC
V DET
AFT
RF AGC
IF AGC
VIF AMP
VCC
GND
L711 100uH
C727 0.01
C728 47u/16
C733 470P
C732 470P
C731 470P
R736 5.6K
R735 5.6K
R734 5.6K
L708 100uH
L707 100uH
L706 100uH
C719 0.01
C718 47u/16
C717 100/16
C716 0.01
C712 0.01
C713 100/16
R714 5.6K
R715 820
L705 22uH
C714 0.01(M)
C715 180P
C737 820P(M)
Z704 CDA6.5ME21
T702 SIF DET COIL
C711 0.01
VR701 33KB
C710 330P
L710 100
C729 0.01
C730 47/16
R751 5.6K
L712 100uH
C738 0.01
C739 47u/16
Q706 KN1203
Q705 KTC1815-Y
R723 5.6K
R724 1K
R713 6.8K
Q707 KTC1815-Y
C720 33P
C740 47P
R702 2.2K
R730 5.6K
R726 22K
Q711 KTA1015-Y
Q710 KTC1815-Y
KTC1815-Y Q712
C724 2.2u/50
C723 2.2u/50
C726 0.0047(M)
C725 0.0068(M)
R729 120K
R728 5.6K
R727 120K
R725 100
Q709 KTC1815-Y
R719 2.7K
L709 33uH
Q708 KTC1815-Y
R716 330
R717 220
R718 1.8K
R722 220
R720 150
R721 220
C721 27P
C735 10u/25
C736 10u/25
VIF SIGNAL
VIDEO SIF SIGNAL
SIF SIGNAL
A
B
C
D
E
F
G
H
1
2
3
4
5

4. IC/TR. PIN VOLTAGE

IC701 (LA7545)			
NO	VOLTAGE	NO	VOTAGE
1	3.9	9	9.18
2	4.9	10	8.71
3	11.1	11	2.4
4	0	12	6.26
5	4.4	13	6.26
6	4.4	14	4.32
7	3.17	15	5.22
8	9.18	16	1.94

TRANSISTOR PIN/VOLTAGE			
SYM/NO	E	C	B
Q701	1.38	11.44	2.08
Q705	0	1.99	0
Q706	0	0.09	3.37
Q707	3.42	3.42	4.10
Q708	4.94	11.68	5.61
Q709	2.73	11.70	3.42
Q710	2.74	11.67	3.40
Q711	4.65	2.52	4.53
Q712	0	3.12	1.48

1.


E
R2
R1
B
C
(TYPE1)
C
R1
B
R2
E
(TYPE2)

TR/NAME	R1	R2	TYPE
KN1203	22K	22K	2
KN1204	47K	47K	2
KN2203	22K	22K	1
KN2204	47K	47K	1
DTC124ES	22K	22K	2

2. THIS VOLTARGE IS CHECKED UNDER AFC ON CONDITION (AFC SWITCH ON POSITION) WITH PRE-SETTING CHANEL 9.

3. UNIT

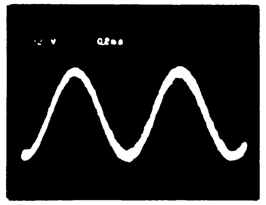
1) RESISTER: OHM

2) CAPACITOR u: uF P: PF

3) INDUCTANCE: uH

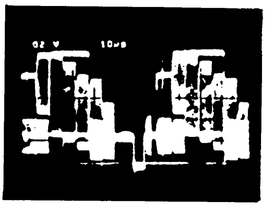
* Tuner/IF Waveform

①



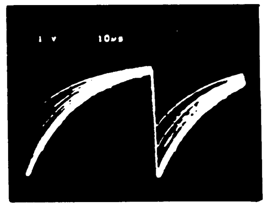
AUDIO OUT
0.2V/0.2mS EE

②



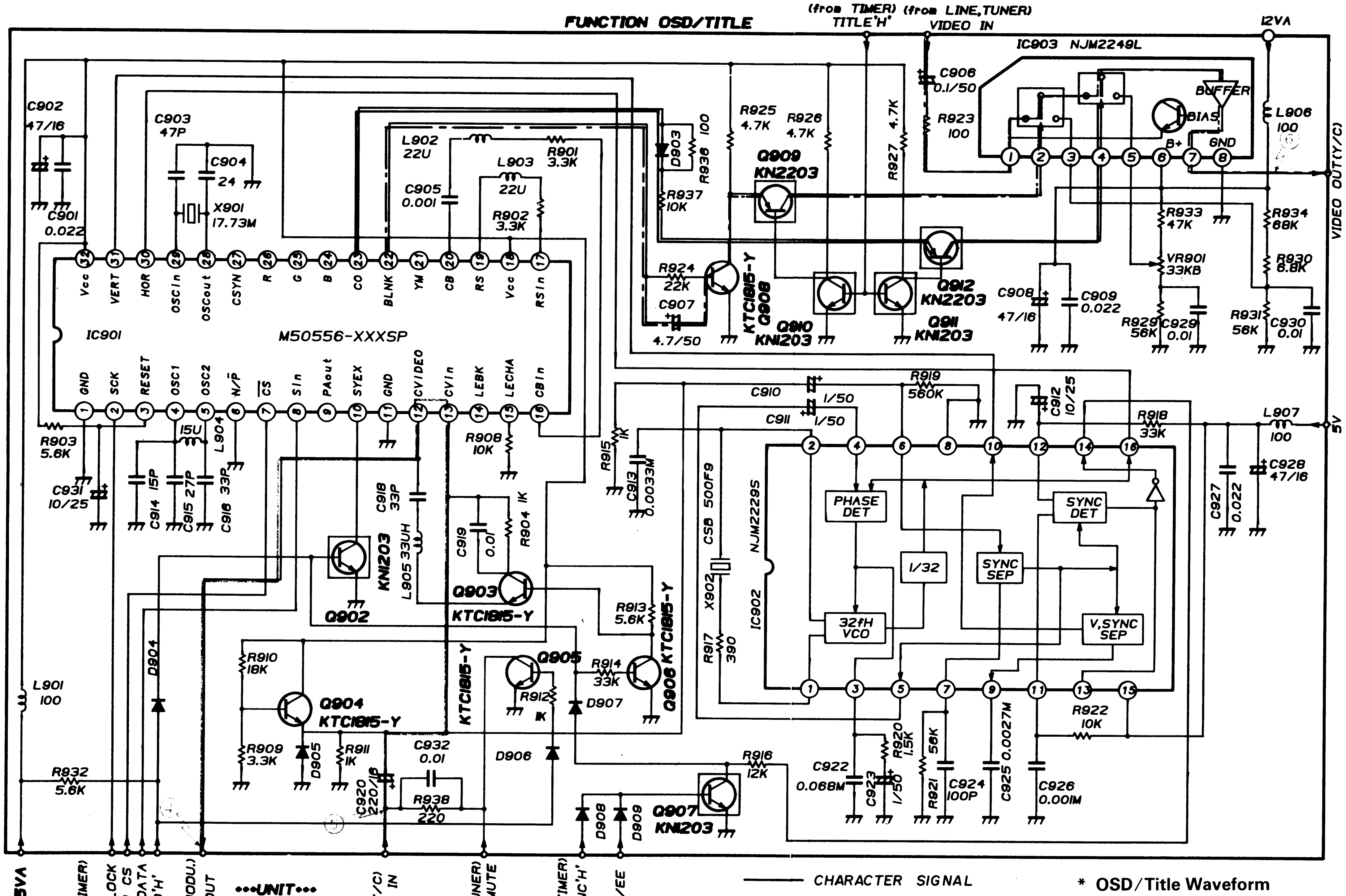
VIDEO OUT
0.2V/10μS EE

③



H-SYNC
1V/10μS EE

8. OSD/Title Circuit Diagram


FUNCTION OSD/TITLE
(from TIMER) TITLE'H'
(from LINE,TUNER) VIDEO IN
12VA
IC903 NJM2249L
BUFFER
BIAS
B+
GND
C906 0.1/50
R923 100
R927 4.7K
R925 4.7K
R926 4.7K
Q909 KN2203
Q908 KTC1815-Y
Q910 KN1203
Q911 KN1203
Q912 KN2203
R924 22K
C907 4.7/50
D903
R936 100
R937 10K
L906 100
VIDEO OUT(Y/C)
R933 47K
R934 68K
VR901 33KB
R930 6.8K
C908 47/16
C909 0.022
R929 56K
C929 0.01
R931 56K
C930 0.01
C902 47/16
C901 0.022
C903 47P
C904 24
X901 17.73M
L902 22U
L903 22U
R901 3.3K
R902 3.3K
C905 0.001
IC901
M50556-XXXSP
Vcc
VERT
HOR
OSCin
OSCout
CSYN
R
G
B
CO
BLNK
YM
CB
RS
RSin
GND
SCK
RESET
OSC1
OSC2
N/P
CS
SIn
PAout
SYEX
CVIDEO
CVin
LEBK
LECHA
CBin
R903 5.6K
C931 10/25
C914 15P
C915 27P
C916 33P
15U
L904
R908 10K
C918 33P
L905 33UH
C919 0.01
R904 1K
Q902 KN1203
Q903 KTC1815-Y
R913 5.6K
Q906 KTC1815-Y
Q905 KTC1815-Y
R914 33K
R912 1K
D907
R910 18K
R909 3.3K
Q904 KTC1815-Y
D905
R911 1K
C932 0.01
C920 220/16
R938 220
D906
D904
L901 100
R932 5.6K
R915 1K
C913 0.0033M
C910 1/50
C911 1/50
R919 560K
C912 10/25
R918 33K
L907 100
5V
C927 0.022
C928 47/16
CSB 500F9
X902
NJM2229S
IC902
R917 390
PHASE DET
1/32
SYNC SEP
SYNC DET
32fH VCO
V,SYNC SEP
R922 10K
R916 12K
C922 0.068M
C923 1/50
R920 1.5K
R921 56K
C924 100P
C925 0.0027M
C926 0.001M
Q907 KN1203
D908
D909
5VA
(from TIMER)
OSD CLOCK
OSD CS
OSD DATA
OSD'H'
(to LNIE,MODU.) VIDEO OUT
(from Y/C) VIDEO IN
(from TUNER) VIDEO MUTE
(from TIMER) SYNC'H'
VV/EE

•••UNIT•••
1)RESISTER;OHM
2)CAPACITOR
P;pF
NONUNIT;uF
3)INDUCTOR;uH
4)DIODE;1SS131

——— CHARACTER SIGNAL
—·—·— BLANK SIGNAL
········· EE OR PB VIDEO SIGNAL
·—·—·— CHARCTER BE RECORD WAVEFROM TO VIDEO/TUNER/LINE VIDEO AND TITLE MODE
○ WAVEFORM

IC & TR PIN VOLTAGE

IC 901 M50554-XXXSP			
PIN	VOLTAGE	PIN	VOLTAGE
1	0	17	0.80
2	0.89	18	5.0
3	4.99	19	0.8
4	2.37	20	0
5	2.2	21	0
6	0	22	4.89
7	5.03	23	0
8	5.0	24	0
9	0	25	0
10	4.92	26	0
11	0	27	4.53
12	0.72	28	5.0
13	0.72	29	2.28
14	0.60	30	2.26
15	2.0	31	0.35
16	0.6	32	0

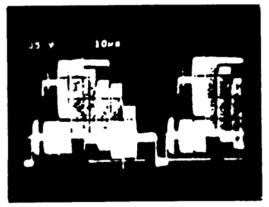
IC 902 NJM2229S			
PIN	VOLTAGE	PIN	VOLTAGE
1	2.65	9	0.16
2	2.10	10	0
3	2.18	11	0.55
4	0.13	12	1.9
5	0.73	13	4.32
6	3.47	14	0
7	2.62	15	4.97
8	0	16	0.37

IC 903 NJM2249L			
PIN	VOLTAGE	PIN	VOLTAGE
1	5.01	5	5.55
2	0	6	11.74
3	5.08	7	4.30
4	0	8	0

TR	E	C	B
Q901			
Q902	0	4.92	0.39
Q903	1.29	1.29	1.97
Q904	0.72	5.0	0.73
Q905	0	5.67	0
Q906	0	1.97	0.33
Q907	2.88	0	0
Q908	0	0	0.63
Q909	5	0	5.03
Q910	0	5.02	0
Q911	0	4.7	0
Q912	1.64	0	4.7

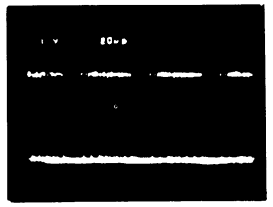
* OSD/Title Waveform

④



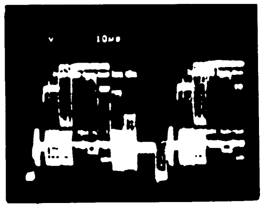
VIDEO OUT
0.5V/10μS EE OR PB

⑤



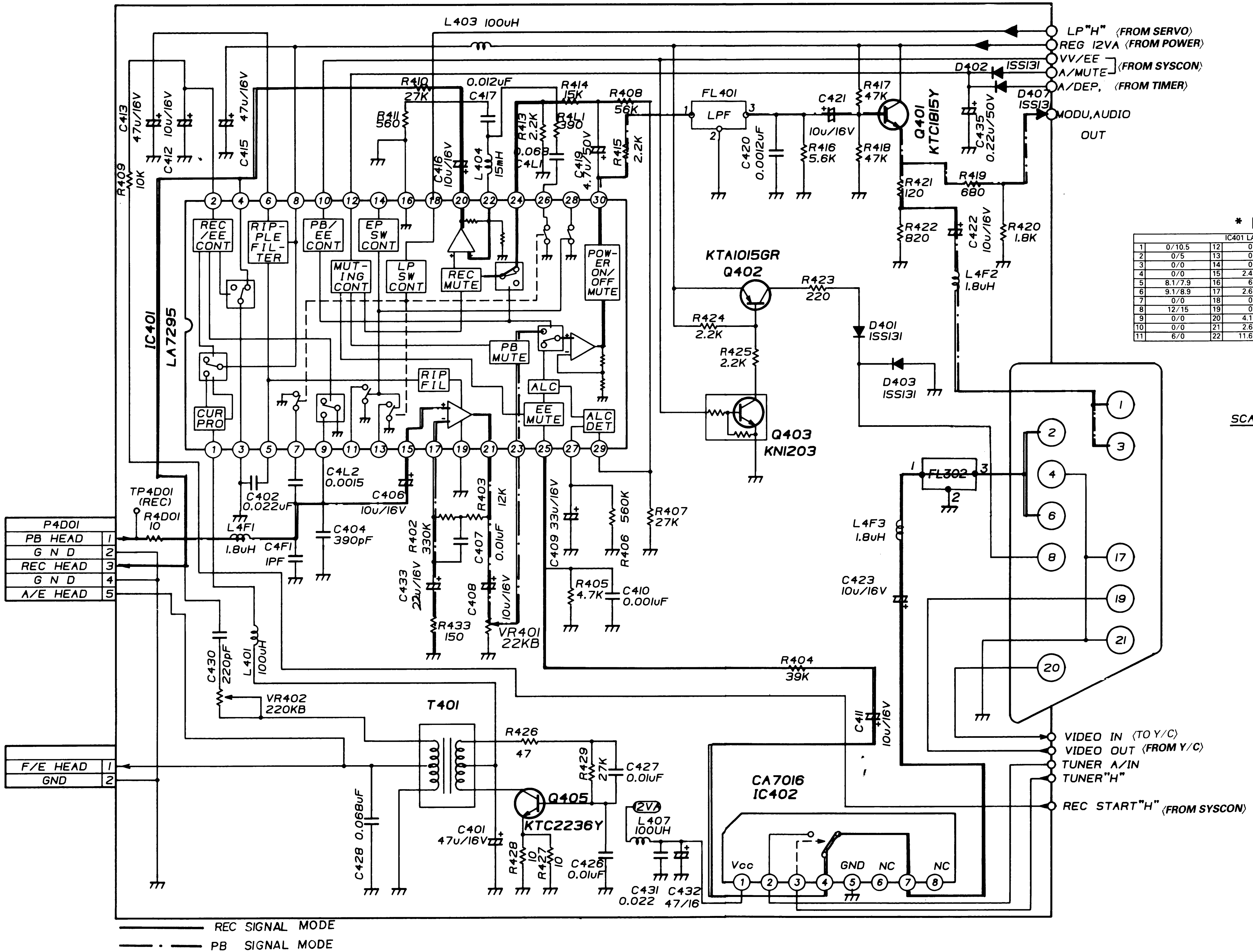
VIDEO IN
1V/20μS EE OR PB

⑥



VIDEO OUT
0.2V/10μS

5. Audio Circuit Diagram



L403 100uH
LP"H" (FROM SERVO)
REG 12VA (FROM POWER)
VV/EE
A/MUTE (FROM SYSCON)
A/DEP. (FROM TIMER)
MODU,AUDIO OUT
D402 ISS131
D407 ISS131
C413 47u/16V
C412 10u/16V
C415 47u/16V
R409 10K
R410 27K
R411 560
0.012uF C417
R414 15K
R408 56K
R413 2.2K
R4L1 390
0.068 C4L1
C419 4.7u/50V
R415 2.2K
C416 10u/16V
L404 15mH
FL401 LPF
C420 0.0012uF
C421 10u/16V
R416 5.6K
R417 47K
R418 47K
Q401 KTC1815Y
C435 0.22u/50V
R421 120
R419 680
R422 820
C422 10u/16V
R420 1.8K
L4F2 1.8uH
IC401 LA7295
REC/EE CONT
RIP-PLE FIL-TER
PB/EE CONT
EP SW CONT
MUT-ING CONT
LP SW CONT
REC MUTE
POW-ER ON/OFF MUTE
PB MUTE
ALC
EE MUTE
ALC DET
RIP FIL
CUR PRO
KTA1015GR Q402
R423 220
R424 2.2K
R425 2.2K
D401 ISS131
D403 ISS131
Q403 KN1203
TP4D01 (REC)
R4D01 10
L4F1 1.8uH
C4F1 1PF
C402 0.022uF
C4L2 0.0015
C404 390pF
C406 10u/16V
R402 330K
R403 12K
C407 0.01uF
C433 22u/16V
C408 10u/16V
R433 150
VR401 22KB
C409 33u/16V
R406 560K
R407 27K
R405 4.7K
C410 0.001uF
P4D01
PB HEAD 1
G N D 2
REC HEAD 3
G N D 4
A/E HEAD 5
C430 220pF
L401 100uH
VR402 220KB
T401
R426 47
R429 27K
C427 0.01uF
Q405 KTC2236Y
C401 47u/16V
C428 0.068uF
R428 10
R427 10
C426 0.01uF
12VA
L407 100UH
C431 0.022
C432 47/16
F/E HEAD 1
GND 2
R404 39K
C411 10u/16V
FL302
L4F3 1.8uH
C423 10u/16V
CA7016 IC402
Vcc
GND NC NC
VIDEO IN (TO Y/C)
VIDEO OUT (FROM Y/C)
TUNER A/IN
TUNER"H"
REC START"H" (FROM SYSCON)
REC SIGNAL MODE
PB SIGNAL MODE

* PB/REC Mode

IC401 LA7295					
1	0/10.5	12	0/0	23	0/0
2	0/5	13	0/0	24	0/0
3	0/0	14	0/0	25	0/0
4	0/0	15	2.4/2.3	26	0/0
5	8.1/7.9	16	6/0	27	0.2/0.2
6	9.1/8.9	17	2.6/2.4	28	0/0
7	0/0	18	0/0	29	0/0
8	12/15	19	0/0	30	3.4/3.3
9	0/0	20	4.1/3.5		
10	0/0	21	2.6/2.4		
11	6/0	22	11.6/11.6		

SCART PIN SIGNAL NAME

1) 3), AUDIO OUT

2) 6), AUDIO IN

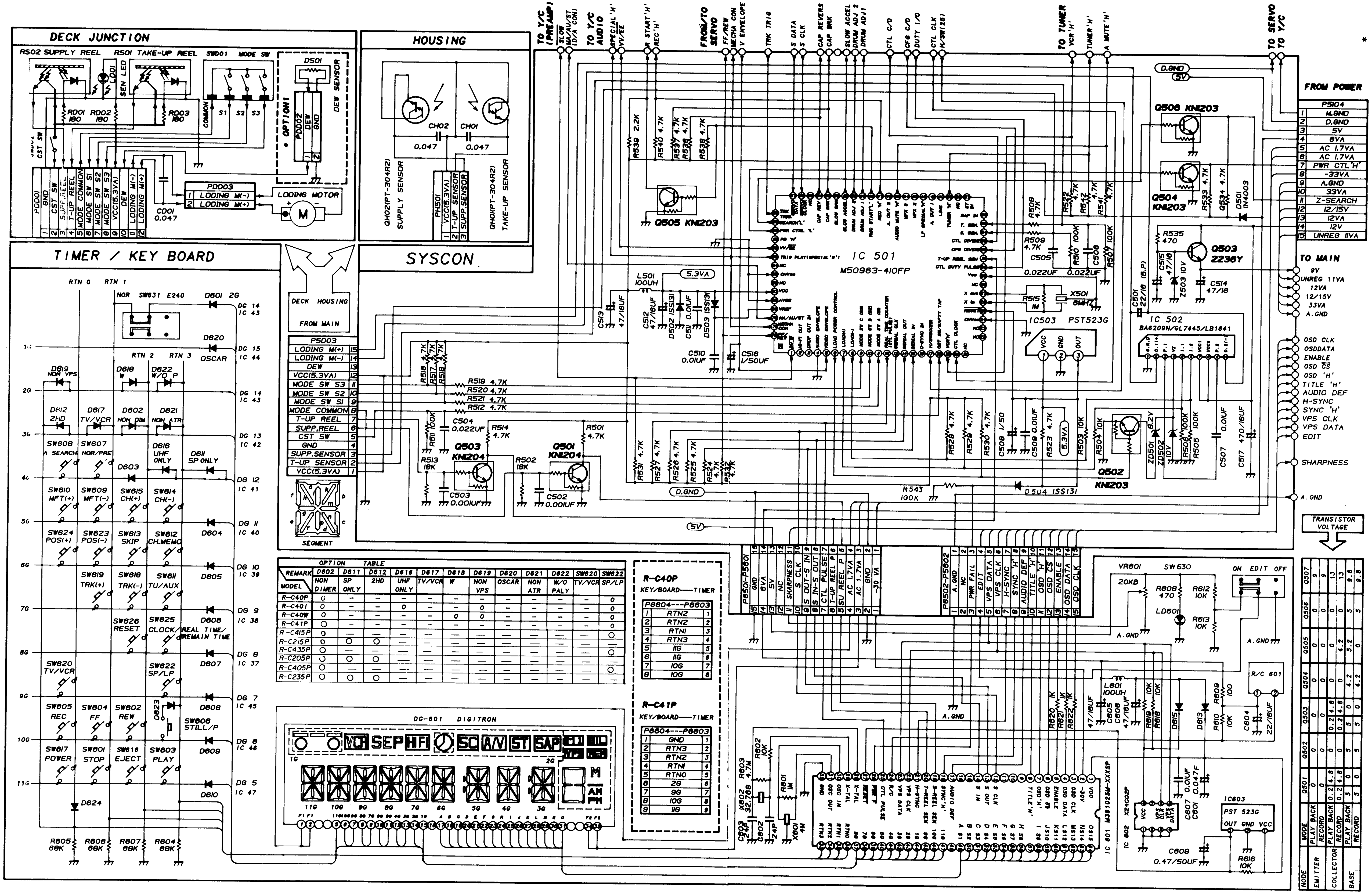
8), PB 12V

20), VIDEO IN

19), VIDEO OUT

4) 17) 21), GROUND

6. Syscon/Timer/Key Function Circuit Diagrams


DECK JUNCTION
RS02 SUPPLY REEL
RS01 TAKE-UP REEL
SW001 MODE SW
CST SW
RD01 180
RD02 180
RD03 180
SEN LED
LD01
COMMON
S1
S2
S3
DS01
DEW SENSOR
OPTION1
PDD02
PDD01
GND
CST SW
SUPP.REEL
T-UP REEL
MODE COMMON
MODE SW S1
MODE SW S2
MODE SW S3
VCC(5.3VA)
DEW
LODING M(-)
LODING M(+)
CD01 0.047
PDD03
LODING M(-)
LODING M(+)
LODING MOTOR
M
HOUSING
CH02 0.047
CH01 0.047
QH02(PT-304R2) SUPPLY SENSOR
QH01(PT-304R2) TAKE-UP SENSOR
PH501
VCC(5.3VA)
T-UP SENSOR
SUPP.SENSOR
TIMER / KEY BOARD
SYSCON
DECK HOUSING
FROM MAIN
P5D03
LODING M(+)
LODING M(-)
DEW
VCC(5.3VA)
MODE SW S3
MODE SW S2
MODE SW S1
MODE COMMON
T-UP REEL
SUPP.REEL
CST SW
GND
SUPP.SENSOR
T-UP SENSOR
VCC(5.3VA)
SEGMENT
RTN 0
RTN 1
RTN 2
RTN 3
NOR SW631 E240
D601 2G
D620 OSCAR
D619 NON VPS
D618 W
D622 W/O P
D612 2HD
D617 TV/VCR
D602 NON DIM
D621 NON ATR
SW608 A SEARCH
SW607 NOR/PRE
D616 UHF ONLY
D611 SP ONLY
D603
SW610 MFT(+)
SW609 MFT(-)
SW615 CH(+)
SW614 CH(-)
SW624 POS(+)
SW623 POS(-)
SW613 SKIP
SW612 CH.MEMO
D604
SW619 TRK(+)
SW618 TRK(-)
SW611 TU/AUX
D605
SW626 RESET
SW625 CLOCK/
REAL TIME/REMAIN TIME
D606
SW620 TV/VCR
SW622 SP/LP
D607
SW605 REC
SW604 FF
SW602 REW
D623
SW606 STILL/P
D608
SW617 POWER
SW601 STOP
SW616 EJECT
SW603 PLAY
D609
D624
D610
R605 68K
R606 68K
R607 68K
R604 68K
DG 14 IC 43
DG 15 IC 44
DG 14 IC 43
DG 13 IC 42
DG 12 IC 41
DG 11 IC 40
DG 10 IC 39
DG 9 IC 38
DG 8 IC 37
DG 7 IC 45
DG 6 IC 46
DG 5 IC 47
DG-601 DIGITRON
VCR SEP HIFI SC A/V ST SAP
TO Y/C (PREAMP)
SLOW
MA/AU/ST (D/A CON)
TO Y/C AUDIO
SPECIAL 'H'
VV/EE
R START 'H'
REC 'H'
FROM/TO SERVO
FF/REW
MECHA CON
V ENVELOPE
TRK TRIG
S DATA
S CLK
CAP REVERS
CAP BRK
SLOW ACCEL
DRUM ADJ 2
DRUM ADJ 1
CTL C/D
CFG C/D
DUTY 1/0
CTL CLK
H/3W(28)
TO TUNER
VCR 'H'
TUNER 'H'
A MUTE 'H'
TO SERVO
TO Y/C
D.GND
5V
FROM POWER
P5104
M.GND
D.GND
5V
6VA
AC L7VA
AC L7VA
PWR CTL 'H'
-33VA
A.GND
33VA
Z-SEARCH
12/15V
12VA
12V
UNREG 11VA
Q506 KN1203
Q504 KN1203
Q505 KN1203
Q503 2236Y
Q502 KN1203
Q501 KN1204
Q503 KN1204
D501 1N4003
R535 470
C515 47/16
Z503 10V
C514 47/16
IC 501
M50963-410FP
L501 100UH
5.3VA
C513 47/16UF
C512 47/16UF
D502 1SS131
C511 0.01UF
D503 1SS131
C510 0.01UF
C516 1/50UF
R539 2.2K
R540 4.7K
R537 4.7K
R536 4.7K
R538 4.7K
R508 4.7K
R509 4.7K
C505 0.022UF
R510 100K
C508 0.022UF
R515 1M
X501 6MHZ
IC503 PST523G
VCC GND OUT
IC 502
BA6209N/GL7445/LB1641
C501 22/16 (B.P)
TO MAIN
9V
UNREG 11VA
12VA
12/15V
33VA
A.GND
OSD CLK
OSDDATA
ENABLE
OSD CS
OSD 'H'
TITLE 'H'
AUDIO DEF
H-SYNC
SYNC 'H'
VPS CLK
VPS DATA
EDIT
SHARPNESS
A.GND
R516 4.7K
R517 4.7K
R518 4.7K
R519 4.7K
R520 4.7K
R521 4.7K
R512 4.7K
C504 0.022UF
R511 100K
R513 18K
C503 0.001UF
R514 4.7K
R502 18K
C502 0.001UF
R501 4.7K
R531 4.7K
R527 4.7K
R526 4.7K
R525 4.7K
R524 4.7K
R532 4.7K
R529 4.7K
R528 4.7K
R530 4.7K
C506 1/50
C509 0.01UF
R523 4.7K
R503 10K
R507 10K
ZD501 8.2V
ZD502 10V
R506 100K
R505 10K
C507 0.01UF
C517 470/16UF
R543 100K
D504 1SS131
D.GND
5V
P6501-P5601
GND
6VA
5V
NC
SHARPNESS
S CLK
S OUT-S IN
S IN-S OUT
CTL 'L'
SU REEL P
T-UP REEL P
AC L7VA
AC 1.7VA
GND
-30 VA
P6502-P5602
A.GND
NC
PWR FAIL
EDIT
VPS DATA
VPS CLK
H-SYNC
SYNC 'H'
AUDIO DEF
TITLE 'H'
OSD 'H'
OSD CS
ENABLE
OSD DATA
OSD CLK
VR601 20KB
SW630
R608 470
R612 10K
LD601
R613 10K
A.GND
ON EDIT OFF
R/C 601
C604 22/16UF
L601 100UH
C605 47/16UF
C606 47/16UF
R620 1K
R621 1K
R622 1K
R618 10K
R619 10K
D615
D613
R610 10K
R609 100
R602 10K
R603 4.7M
X602 32.768
C603 24P
C602 24P
R601 1M
X601 4M
IC 601 M381025M-XXXSP
IC 602 X24C02P
C607 0.01UF
C601 0.047F
IC603 PST 523G
OUT GND VCC
C608 0.47/50UF
R616 10K
A.GND

OPTION TABLE

MODEL \ REMARK	D602 NON DIMER	D611 SP ONLY	D612 2HD	D616 UHF ONLY	D617 TV/VCR	D618 W	D619 NON VPS	D620 OSCAR	D621 NON ATR	D622 W/O PALY	SW620 TV/VCR	SW622 SP/LP
R-C40P	O	–	–	–	–	–	–	–	–	–	–	O
R-C401	O	–	–	O	–	–	O	–	–	–	–	O
R-C40W	O	–	–	–	–	O	O	–	–	–	–	O
R-C41P	O	–	–	–	–	–	–	–	–	–	–	O
R-C415P	O	–	–	–	–	–	–	–	–	–	–	O
R-C215P	O	O	O	–	–	–	–	–	–	–	–	–
R-C435P	O	–	–	–	–	–	–	–	–	–	–	O
R-C205P	O	O	O	–	–	–	–	–	–	–	–	–
R-C405P	O	–	–	–	–	–	–	–	–	–	–	O
R-C235P	O	O	O	–	–	–	–	–	–	–	–	–

R-C40P

KEY/BOARD——TIMER

P6604	---P6603	
1	RTN2	1
2	RTN2	2
3	RTN1	3
4	RTN3	4
5	11G	5
6	11G	6
7	10G	7
8	10G	8

R-C41P

KEY/BOARD——TIMER

P6604	---P6603	
1	GND	1
2	RTN3	2
3	RTN2	3
4	RTN1	4
5	RTN0	5
6	2G	6
7	9G	7
8	10G	8
9	11G	9

TRANSISTOR VOLTAGE

NODE	MODE	Q501	Q502	Q503	Q504	Q505	Q506	Q507
EMITTER	PLAY BACK	0	0	0	0	0	0	9
	RECORD	0	0	0	0	0	0	9
COLLECTOR	PLAY BACK	0.2 4.8	0	0.2 4.8	0	0	0	13
	RECORD	0.2 4.8	0	0.2 4.8	0	4.2	0	13
BASE	PLAY BACK	5 0	5	5 0	4.2	5.2	5	9.8
	RECORD	5 0	5	5 0	4.2	0	5	9.8

	SW 630 EDIT	W&ED TIN WIRE
4 HD	0	X
2 HD	X	0

• NOTE •

FILE ; DIGITRON _ P
DIODE ; D101(1N4003), ALL 1SS131

	IC 601 TIMER u-COM
NOR	M36102M5-131SP
WITH VPT	M381025M-XXXSP

* Syscon IC501, 502 Voltage Sheet

IC501

Pin No \ Mode	PB	REC
1	5	5
2	5	0
3	0	0
4	0	0
5		0.3
6	0	0
7	4.4	4.4
8	4.4	4.4
9	0	5
10	0	5
11		5
12	0	0.2
13	5	5
14	0	0
15	0	0
16	0	0
17	5	0
18	5	0
19	4.2	4.2
20	0	0
21	5	5
22	0	0
23	0	0
24	0	0
25	5	5
26	2.2	2.2
27	2.2	2.2
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
33	5	5
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	5	5
40	5	5
41	5.6	5.6
42	0	5
43	0	0
44	0	0
45	0.2	0.3
46	5.6	5.6
47	0	0
48	4.2	0
49	5	5
50	1.2	1.2
51	5	5
52	0	0
53	0	0
54	0	0
55	5	5
56	0	0
57	0	0
58	5	0
59	5	5
60	0	0
61	5	0
62	5	0
63	0	0
64	0	0
65	0	0
66	0	0
67	5	5
68	0	0
69	4.4	4.4
70	4.2	4.2
71	5	5
72	0	0

IC502

Pin No. \ Mode	PB	REC
1	0	0
2	0.6	0.6
3	0.8	0.8
4	0.3	0.3
5	1.7	1.7
6	1.7	1.7
7	11.6	11.6
8	11.6	11.6
9	0.8	0.8
10	0.6	0.6

SECTION 4
MECHANISM

CONTENTS

FRONT LOADING MECHANISM DISASSEMBLY

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1. Front Loading Mechanism Assembly ... 4-4
2. PCB Assembly ... 4-5
    2-1. PCB Assembly(R) ... 4-5
    2-2. PCB Assembly(L) ... 4-5
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    4-1. Carrier Bracket Assembly ... 4-6
    4-2. Cassette Opener ... 4-6
    4-3. Lid Opener ... 4-6
    4-4. Detect Lever and Detect Spring ... 4-6
    4-5. Bracket Support ... 4-7
    4-6. Carrier Bracket Assembly ... 4-7
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9. Drive Gear Assembly ... 4-8
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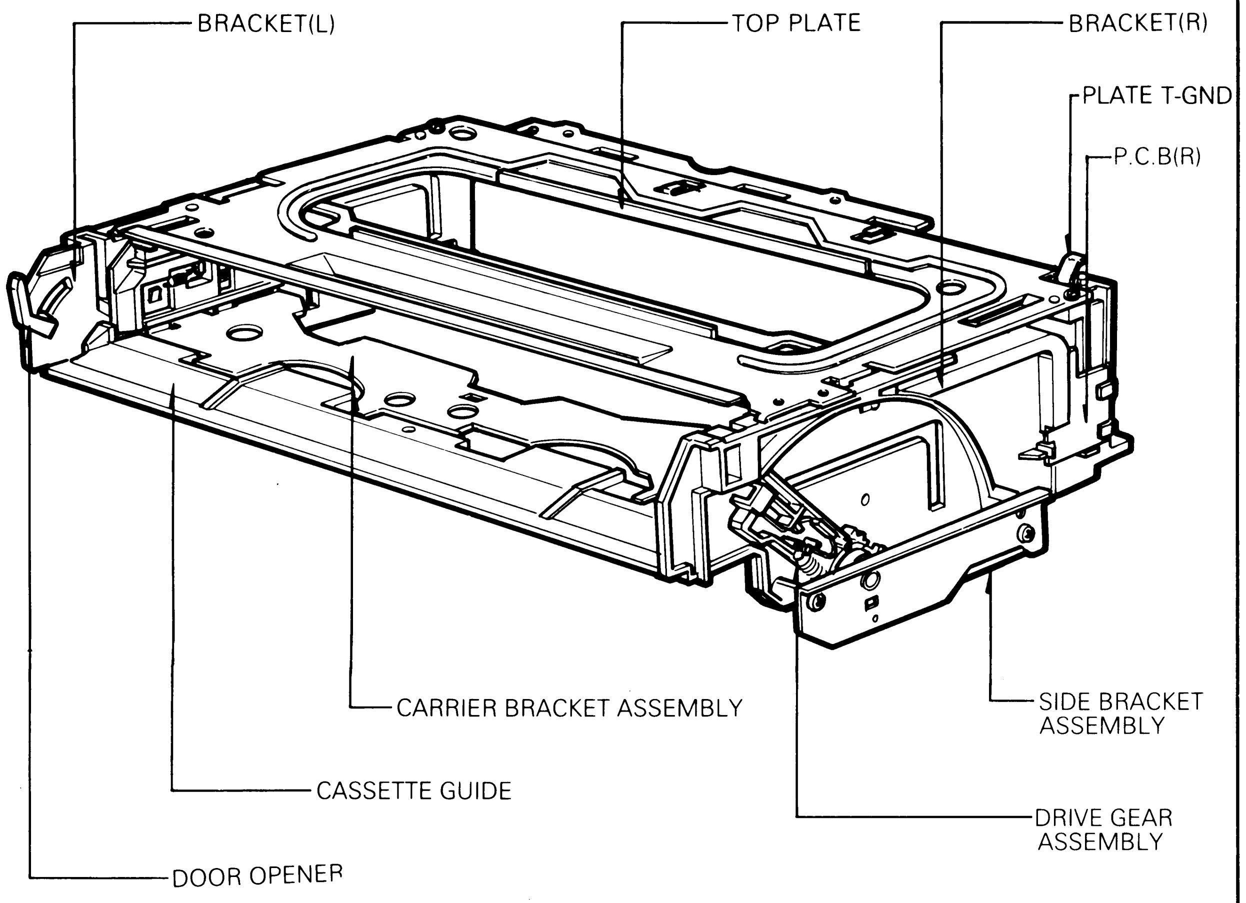
FRONT LOADING MECHANISM DISASSEMBLY

• Front Loading Mechanism Parts Location


BRACKET(L)
TOP PLATE
BRACKET(R)
PLATE T-GND
P.C.B(R)
CARRIER BRACKET ASSEMBLY
SIDE BRACKET ASSEMBLY
CASSETTE GUIDE
DRIVE GEAR ASSEMBLY
DOOR OPENER

Front Loading Mechanism Parts Location

1. Component list below will be discribed as if the top and bottom covers and the front panel have already been removed.
2. P.C.B Assembly
3. Top Plate
4. Carrier Bracket Assembly
5. Cassette Guide
6. Side Bracket Assembly
7. Bracket(L), (R)
8. Door Opener
9. Drive Gear Assembly

1. Front Loading Mechanism Assembly (Fig. A-1-1)

1) Remove the Top and Bottom Covers and the Front panel.
2) Unplug the connector.
3) Remove two screws(A).
4) Lift up the Front Loading Mechanism in the direction of arrow(C).

*** NOTE**

1) When disassembling and reassembling

① Give special attention to removal. because two tabs(D) are engaged.

② Make sure that Bosses of Bracket(L),(R) are properly engaged in the holes of the chassis.

③ To reassemble Front Loading Mechanism, the Drive Gear Assembly should be turned in a counterclockwise as shown in Fig. A-1-2 so that the Rack Gear N.D of Front Loading Mechanism Assembly is meshed into Rack Gear F.L of Deck Mechanism Assembly correctly as shown in Fig. A-1-1.(B).

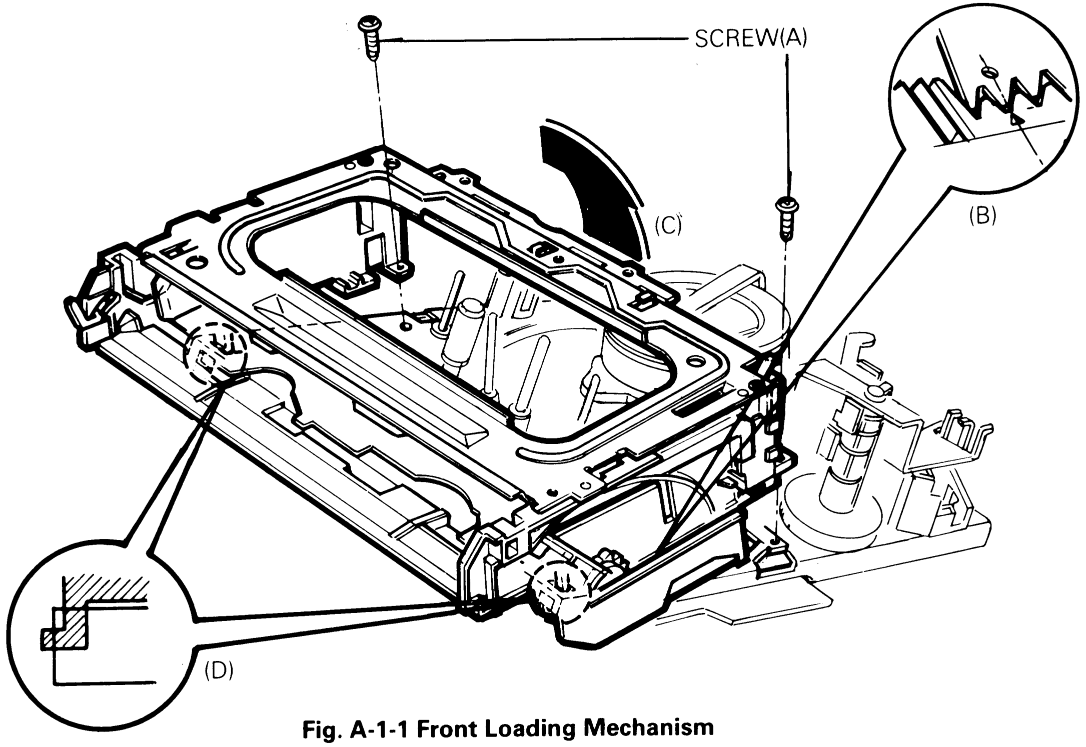
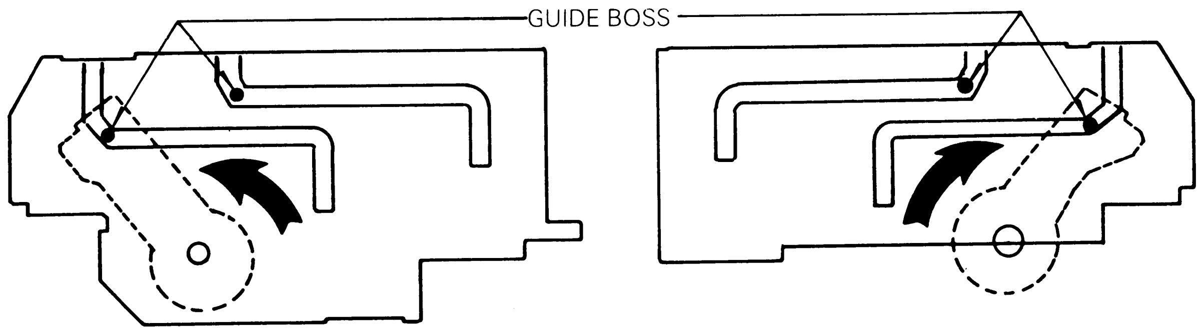


Fig. A-1-1 Front Loading Mechanism



a) Right Side Bracket

b) Left Side Bracket

Fig. A-1-2 Carrier Bracket Assembly

2. PCB(Printed Circuit Board) Assembly

2-1. P.C.B Assembly(R)(Fig. A-2)

1) Remove the PCB Assembly(R) by pushing three Hooks (A) outward.
2) Release the Lead wire from stoppers.

2-2. PCB Assembly(L).(Fig. A-2)

1) Remove the PCB Assembly(L) by pushing the Hook(B) outward.
2) Release the Lead Wire from stoppers.

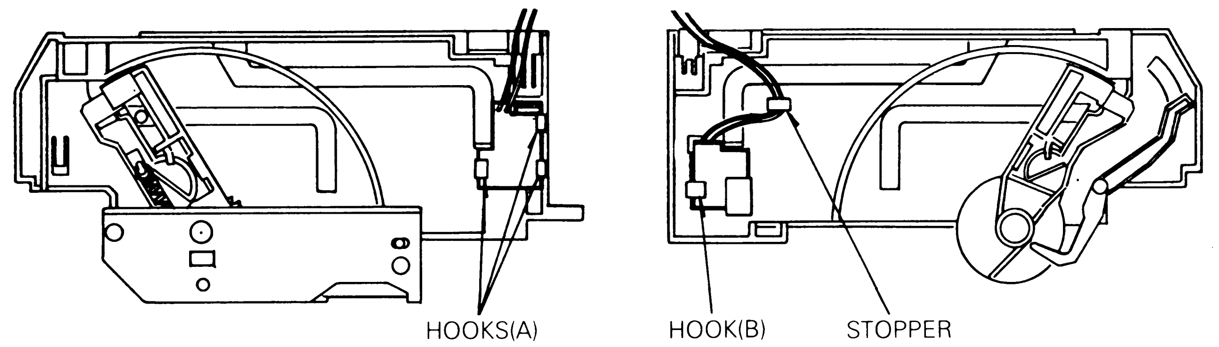


Fig. A-2 PCB Assembly

3. Top Plate(Fig. A-3)

1) Remove two screws(A).
2) Push the upper part of Top plate Ground and then lift up the Top Plate.

*** NOTE**

1) When reassembling, be certain that the tabs(C) of Top Plate is in both Bracket(L),(R).

① Then align the guide holes(D) of Top Plate with Bosses of side Bracket(L),(R).

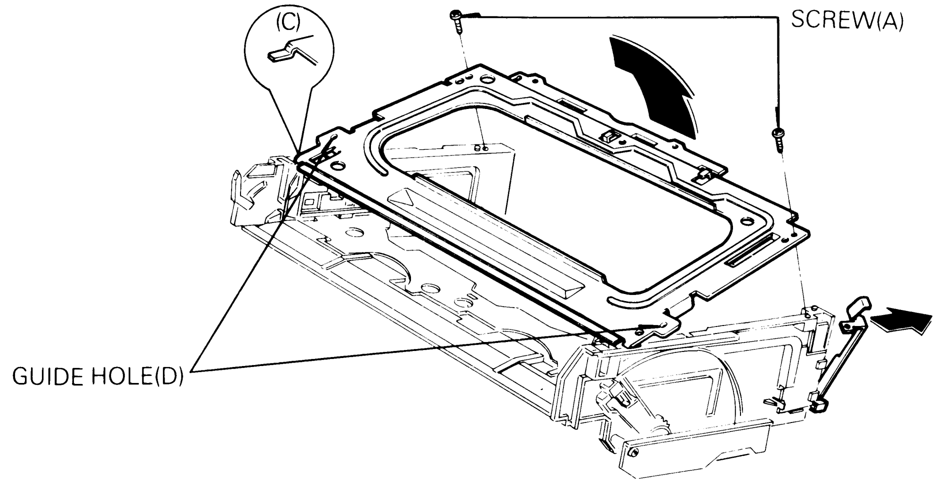


Fig. A-3 Top Plate

4. Carrier Bracket Assembly

4-1. Carrier Bracket Assembly(Fig. A-4-1)

1) Remove the Carrier Bracket Assembly by moving it in the direction of arrow(C).

*** NOTE**

1) When reassembling, be sure that parts(A) of Carrier Bracket Assembly are seated in parts(B) of Bracket(L),(R).

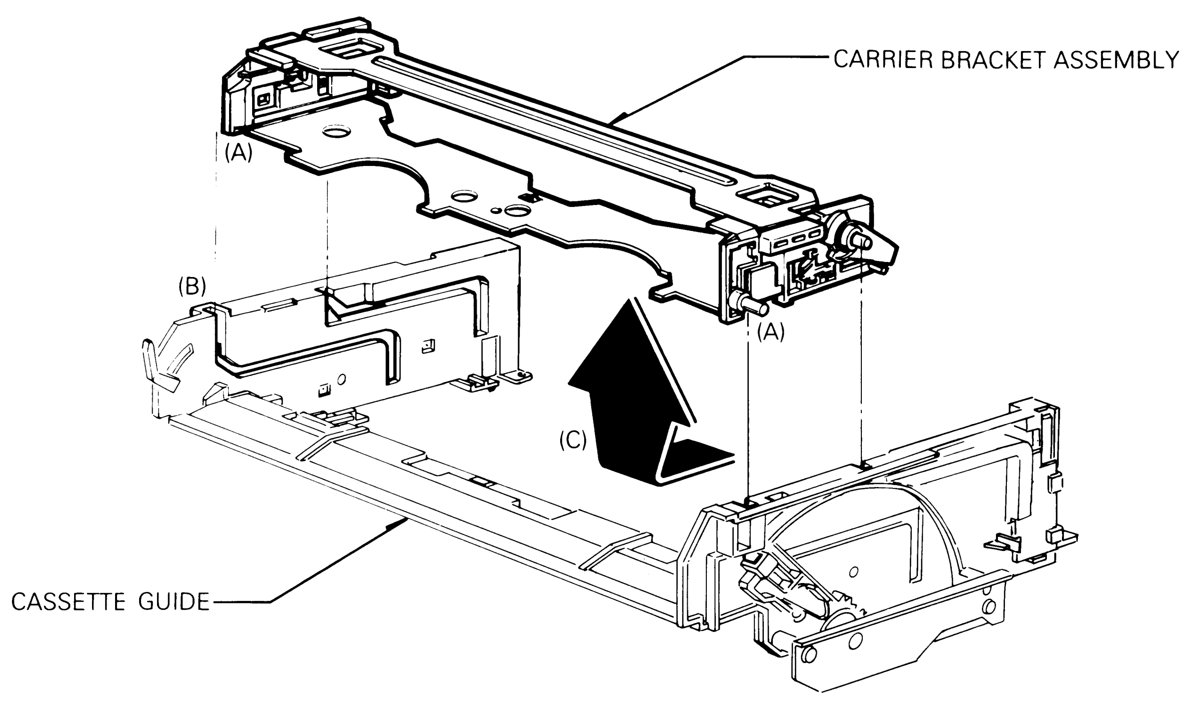

CARRIER BRACKET ASSEMBLY
(A)
(B)
(A)
(C)
CASSETTE GUIDE

Fig. A-4-1 Carrier Bracket Assembly

4-2. Cassette Opener(Fig. A-4-2)

1) Release the spring O.C from the Hook(A) and then release it from Hook(C) of cassette opener.
2) Remove the cassette opener by releasing the Hook(B) from the Holder(R).

4-3. Lid Opener(Fig. A-4-2)

1) Remove the lid opener by pushing it outward.

*** NOTE**

1) When reassembling, seat the upper part of the lid opener in the grooved of Holder(R) and push it inward.

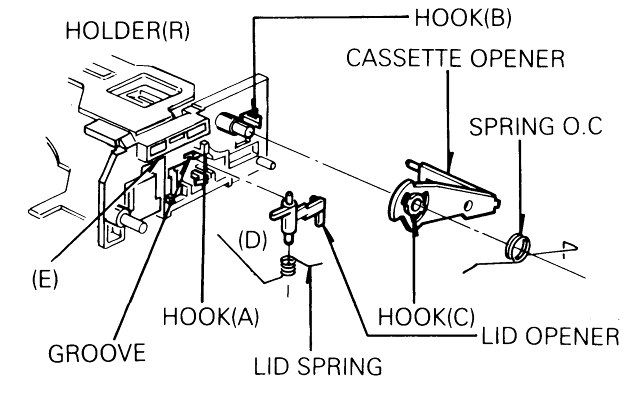

HOLDER(R)
HOOK(B)
CASSETTE OPENER
SPRING O.C
(D)
(E)
HOOK(A)
HOOK(C)
LID OPENER
GROOVE
LID SPRING

Fig. A-4-2. Cassette Door Opener/Lid Opener

4-4. Detect Lever and Detect Spring

1) Remove the spring detect.
2) Lower the side(A) of Detect Lever and then remove the Detect Lever by pushing it outward.

*** NOTE**

1) When reassembling, make sure that the part(C) of Detect Lever set in the part(B) of Holder(R).

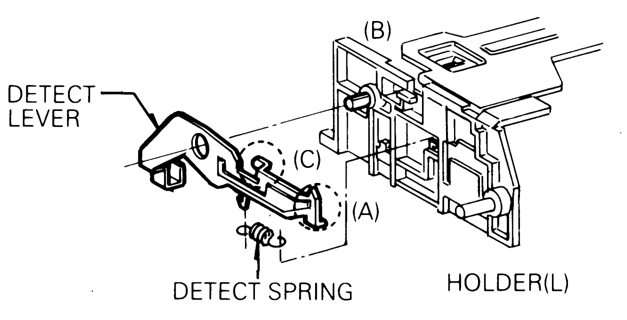

DETECT LEVER
(B)
(C)
(A)
DETECT SPRING
HOLDER(L)

Fig. A-4-3 Detect Lever, Detect Spring

4-5. Bracket Support (Fig. A-4-4)

1) Take the Support Bracket out by releasing hooks(A),(B).

*** NOTE**

1) When disassembling and reassembling, be careful because heavy force can damage the hooks.

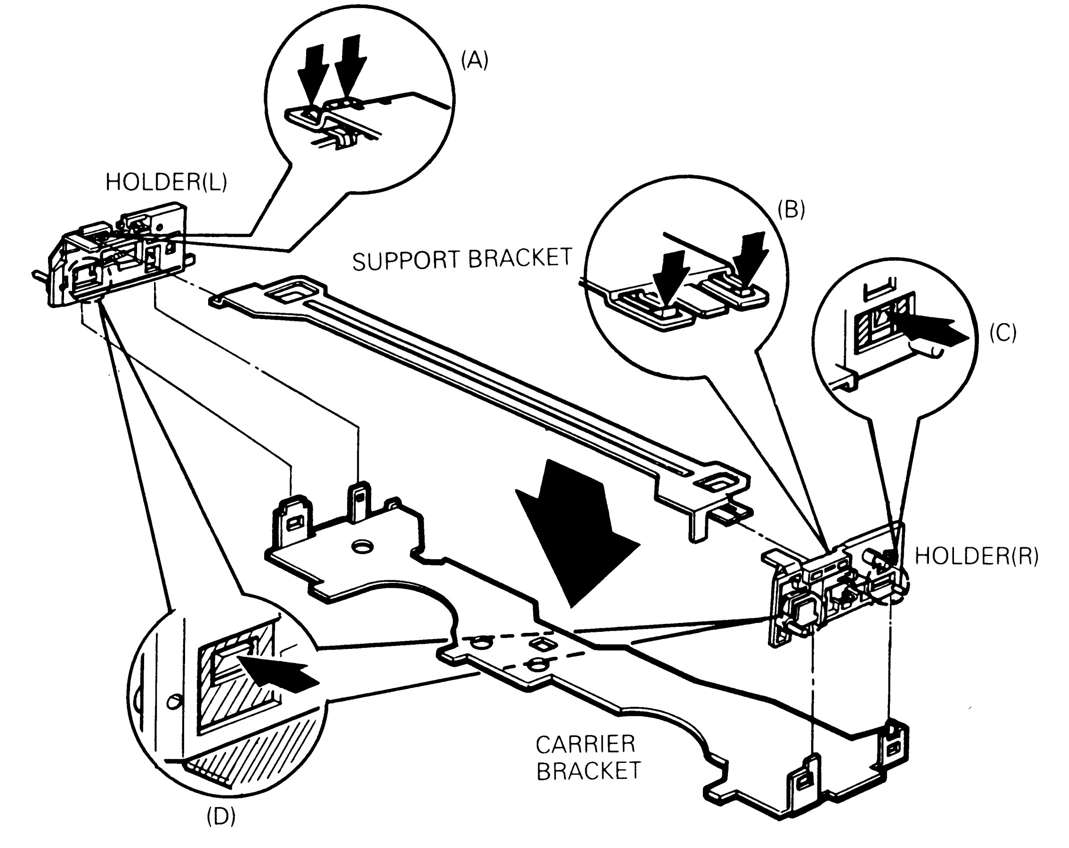

(A)
HOLDER(L)
(B)
SUPPORT BRACKET
(C)
HOLDER(R)
CARRIER BRACKET
(D)

Fig. A-4-4 Bracket Support/Bracket Carrier

4-6. Carrier Bracket Assembly(Fig. A-4-4)

1) Remove the Carrier Bracket by releasing hooks(C),(D).

5. Cassette Guide(Fig. A-5)

1) Remove the Switch Spring with the Front Loading Mechanism Assembly turned over.
2) Push two hooks(B) outward.
3) Remove the Cassette Guide by pushing two hooks(A). outward(if one is removed, the other will be easy to remove)

*** NOTE**

1) When reassembling

① Seat projections(E) of Cassette Guide in holes of Bracket Assembly(L),(R) and then engage the Hook(A).

② After finishing previous step, fix the Cassette Guide to the Bracket Assembly(L),(R) by pushing two hooks(B) inward.

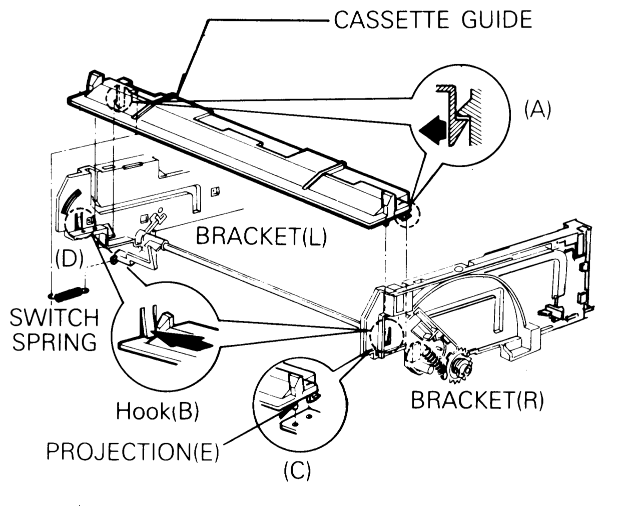

CASSETTE GUIDE
(A)
BRACKET(L)
(D)
SWITCH SPRING
Hook(B)
BRACKET(R)
PROJECTION(E)
(C)

Fig. A-5 Cassette Guide

6. Side Bracket Assembly(Fig. A-6-1)

1) Remove two screws(A) and then remove the Side Bracket Assembly and the Rack Gear N.D.

*** NOTE**

1) When reassembling

① Turn the Drive Gear Assembly in the direction of arrow (C).

② Reassemble the Rack Gear N.D. to the Side Bracket Assembly, as shown in Fig. A-6-2, and then reassemble it to the Bracket Assembly(L). This time the Assembling Figure should be the same as(B) at the rectangular hole of Bracket Side.

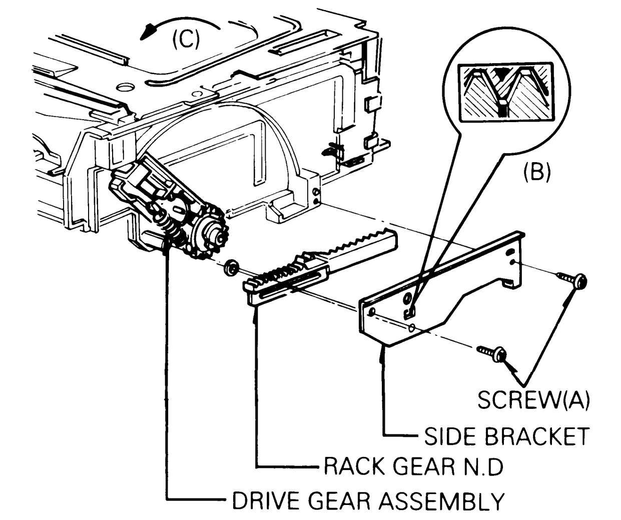

(C)
(B)
SCREW(A)
SIDE BRACKET
RACK GEAR N.D
DRIVE GEAR ASSEMBLY

Fig. A-6-1 Side Bracket Assembly

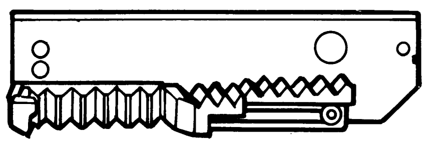


Fig. A-6-2

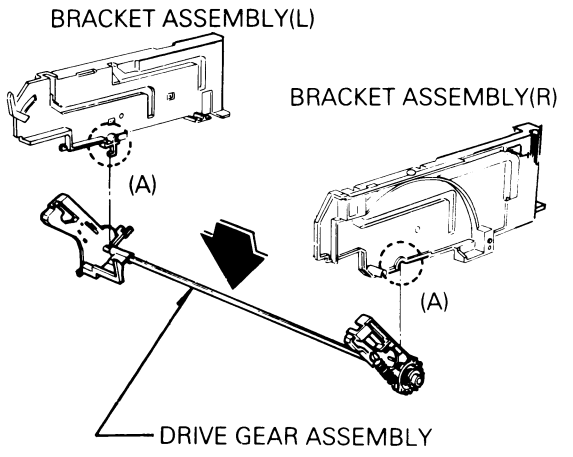

BRACKET ASSEMBLY(L)
BRACKET ASSEMBLY(R)
(A)
(A)
DRIVE GEAR ASSEMBLY

Fig. A-7 Bracket Assembly(L),(R)

7. Bracket Assembly(L),(R)(Fig. A-7)

1) Seperate the Bracket Assembly(L),(R) from the Gear Assembly Drive.

*** NOTE**

1) When reassembling, seat the shaft in the part(A) of Bracket Assembly(L),(R).

8. Door Opener(Fig. A-8)

1) Remove the Door Opener by pushing Hook(A) outward.

*** NOTE**

1) When reassembling, seat the part(B) of Door Opener in the hole( ) of Bracket(L).

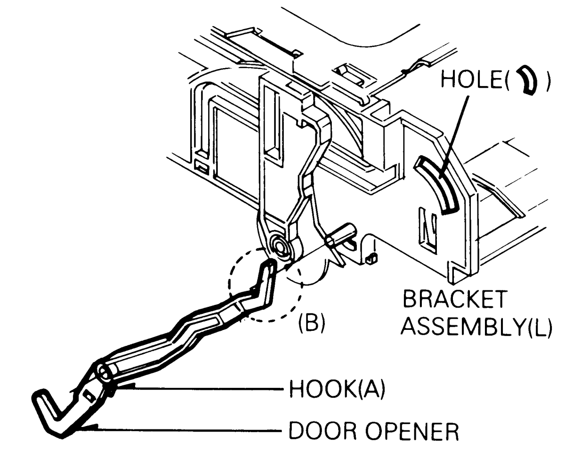

HOLE( )
(B)
BRACKET ASSEMBLY(L)
HOOK(A)
DOOR OPENER

Fig. A-8 Door Opener

9. Drive Gear Assembly

9-1. Drive Gear Assembly(Fig. A-9-1)

1) Remove the Drive Gear Assembly from the Bracket Assembly(L),(R).

9-2. Cushion Spring(Fig. A-9-1)

1) Remove the cushion spring from the Gear R .

9-3. Cap-D(Fig. A-9-1)

1) Remove the Cap-D by lifting it up.

9-4. Spring C.C(Fig. A-9-1)

1) Remove the Spring C.C from the Gear R.

9-5. Gear C(Fig. A-9-1)

1) Remove the Gear C by lifting up when the projection of Gear C is aligned with the hole of Gear R while rotating the Gear C in the counterclockwise direction.

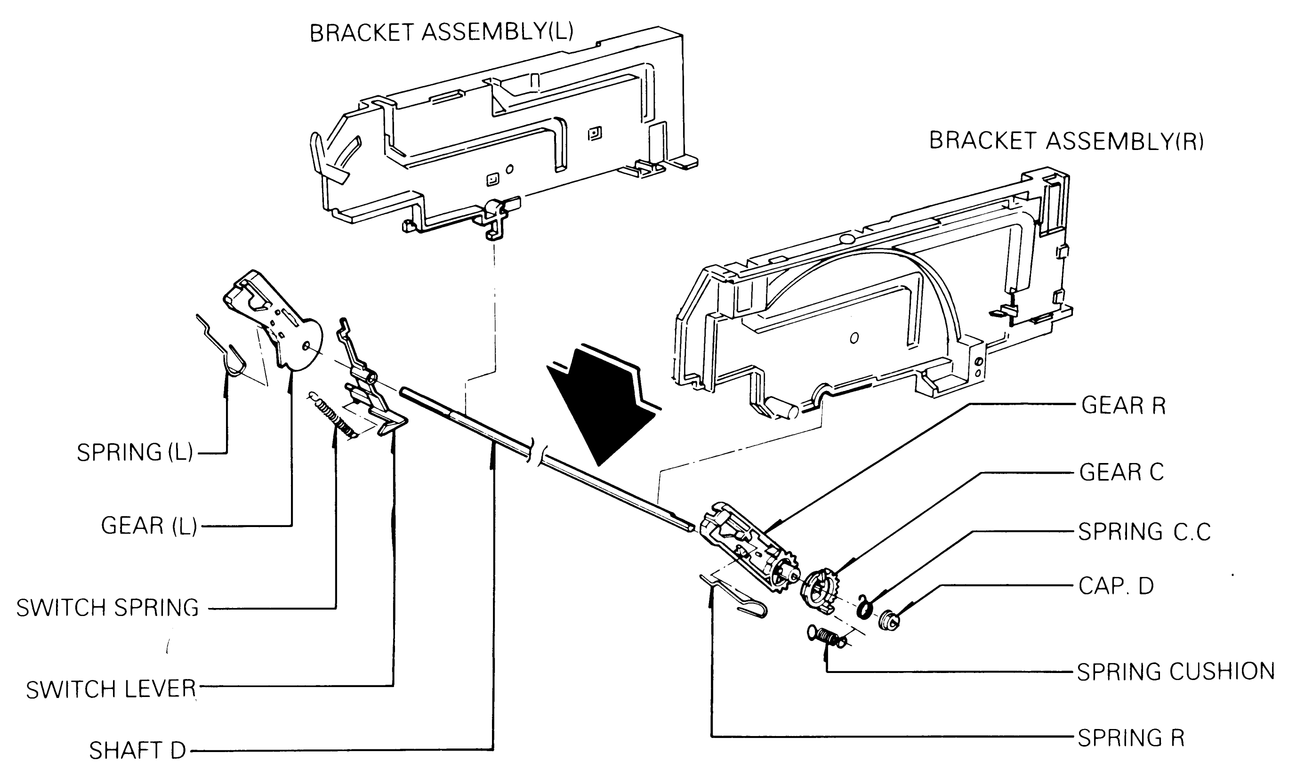

BRACKET ASSEMBLY(L)
BRACKET ASSEMBLY(R)
GEAR R
GEAR C
SPRING C.C
CAP. D
SPRING CUSHION
SPRING R
SPRING (L)
GEAR (L)
SWITCH SPRING
SWITCH LEVER
SHAFT D

Fig. A-9-1 Gear Assembly Drive

*** NOTE**

1) When reassembling, seat the projections of Gear R in the holes of Gear C when the projection of Gear R is aligned with the hole of Gear C, and then keep the Gear C turned in the clockwise direction.

9-6. Gear R(Fig. A-9-1)

1) Lift up the Gear R from the Shaft.

9-7. Spring R(Fig. A-9-2)

1) Remove the Spring R by releasing Hooks.

*** NOTE**

1) When reassembling, be certain Spring R in the part(A) of Gear R.

9-8. Gear L.(Fig. A-9-1)

1) Remove the Gear L from the shaft.

9-9. Spring L (Fig. A-9-2)

1) Remove the Spring L by releasing Hooks from the Gear L.

*** NOTE:** (Refer to the Spring R Section)

9-10. Switch Lever(Fig. A-9-1)

1) Remove the Switch Lever from the shaft.

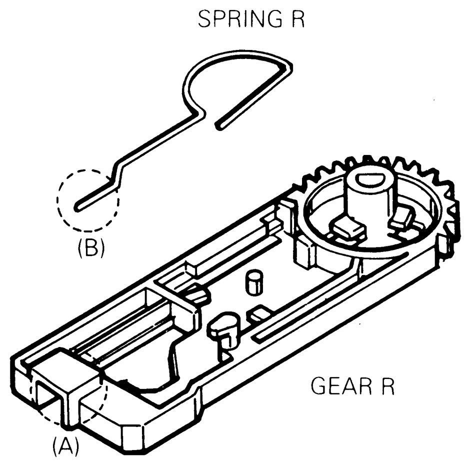
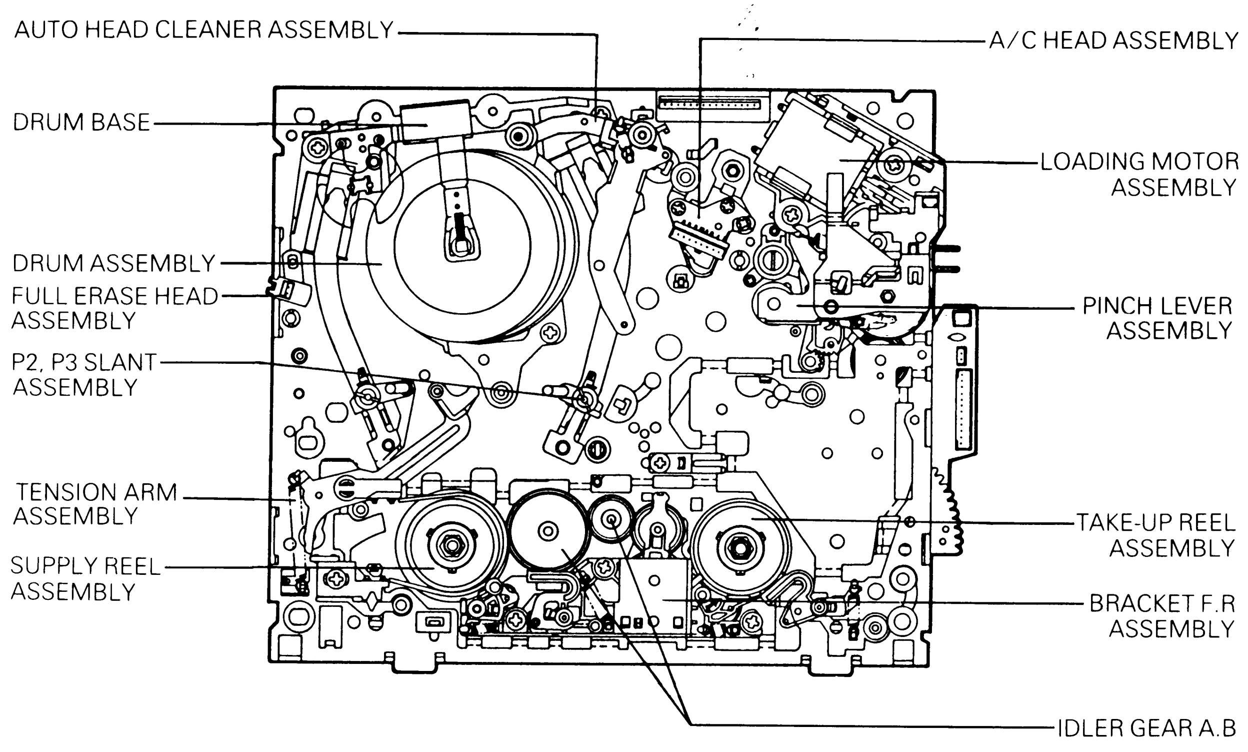

SPRING R
(B)
GEAR R
(A)

Fig. A-9-2 Spring R

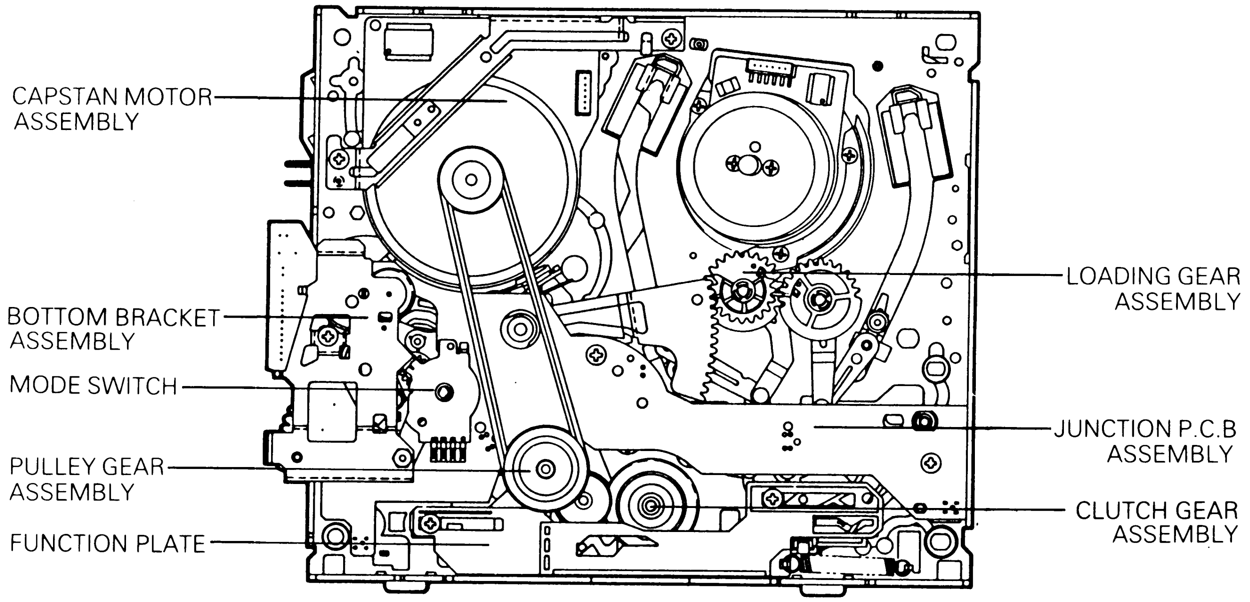
DECK MECHANISM DISASSEMBLY

• Deck Mechanism Parts Location

Top Side


AUTO HEAD CLEANER ASSEMBLY
A/C HEAD ASSEMBLY
DRUM BASE
LOADING MOTOR ASSEMBLY
DRUM ASSEMBLY
FULL ERASE HEAD ASSEMBLY
PINCH LEVER ASSEMBLY
P2, P3 SLANT ASSEMBLY
TENSION ARM ASSEMBLY
TAKE-UP REEL ASSEMBLY
SUPPLY REEL ASSEMBLY
BRACKET F.R ASSEMBLY
IDLER GEAR A.B

Bottom Side


CAPSTAN MOTOR ASSEMBLY
LOADING GEAR ASSEMBLY
BOTTOM BRACKET ASSEMBLY
MODE SWITCH
JUNCTION P.C.B ASSEMBLY
PULLEY GEAR ASSEMBLY
CLUTCH GEAR ASSEMBLY
FUNCTION PLATE

1. Auto Head Cleaner Assembly(Fig. B-1)

1) Remove the Cleaner Spring.
2) Remove the Cleaner Arm by pushing Hook(B) inward and then remove Cleaner Lever by pushing it in the direction of arrow(C).

*** NOTE**

1) When reassembling, do not touch the Video Head Tip with fingers or tools.

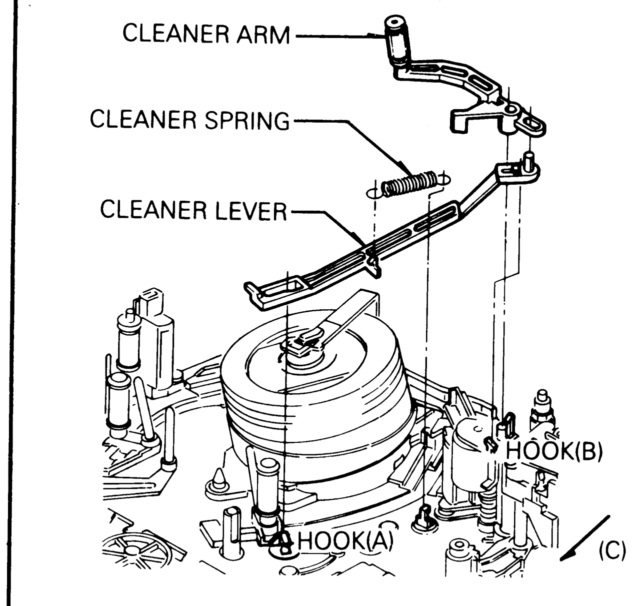

CLEANER ARM
CLEANER SPRING
CLEANER LEVER
HOOK(B)
HOOK(A)
(C)

Fig. B-1 Auto Head Cleaner Assembly

2. Drum Assembly and Drum Base(Fig. B-2)

1) Remove the Auto Head Cleaner Assembly.
2) Unplug the connector with the Deck Mechanism Assembly turned over.
3) Loosen the screw(A) and then lift up the Drum Brush.
4) Remove two screws(B) and then lift up the Drum Assembly and Drum Base from the Deck Mechanism Assembly.
5) Separate the Drum Assembly from the Drum Base by Loosening three screws(C) on the back of Drum Base.

*** NOTE**

1) When disassembling and reassembling

① Do not touch the Video Head tip with fingers or tools. (Give special attention to disassembling and reassembling of Auto Head Cleaner Assembly)

② After reinstalling the Drum Brush, the Drum Brush should be aligned with the center of vertical axis of Drum Assembly.

③ After completing the reassembly, adjust the transportation system and the Servo P.G.

3. Upper and Lower Drum Assembly (Fig. B-3)

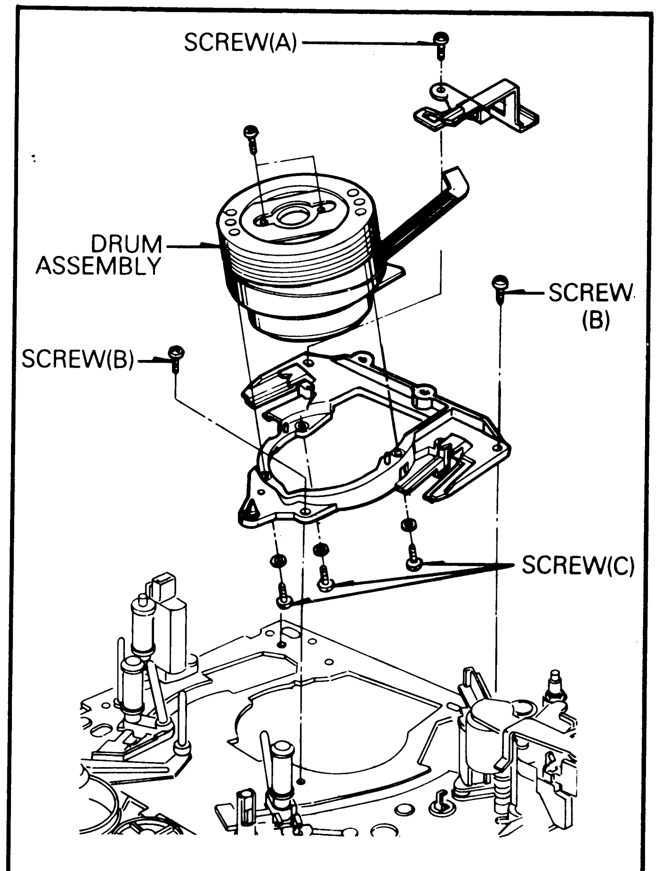

SCREW(A)
DRUM ASSEMBLY
SCREW (B)
SCREW(B)
SCREW(C)

Fig. B-2 Drum Assembly/Drum Base

1) Remove the Drum Assembly and Drum Base from the Deck Mechanism Assembly.
2) Separate the Drum Assembly from the Drum Base.
3) Remove two screws(A).
4) Separate the upper Drum Assembly from the Lower Drum Assembly.

*** NOTE**

1) When disassembling and reassembling

① Do not touch the Video Head Tip with fingers or tools.

② Make sure that the color(white) marked on the P.C.B of the upper Drum should coincide with the color(Green) marked on the Flange Assembly.

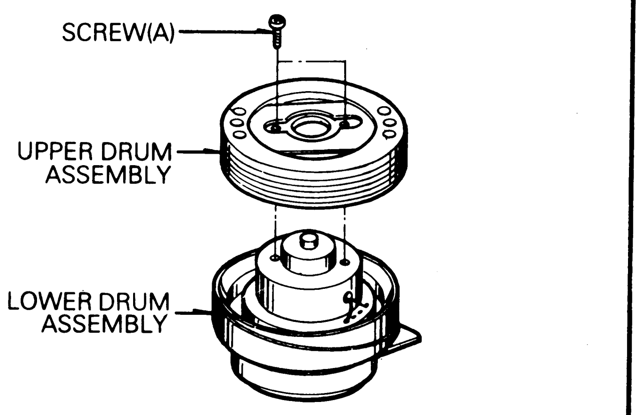

SCREW(A)
UPPER DRUM ASSEMBLY
LOWER DRUM ASSEMBLY

Fig. B-3 Upper/Lower Drum Assembly

4. A/C(Audio/Control) Head Assembly (Fig.B-4)

1) Unplug the connector
2) Remove the Nut(A), and then lift up the A/C Head Assembly.
3) Remove the Azimuth Adjusting Screw.
4) Remove two screws(B),(D) and then separate the A/C Head Assembly from the Base A/C Head Assembly.

*** NOTE**

1) When disassembling

① First of all, release the spring A/C.

② Do not touch the A/C Head Tip with fingers or tools.

③ After reinstalling the Audio Control Head Assembly, adjust the Tilt, Azimuth and Height of A/C Head.

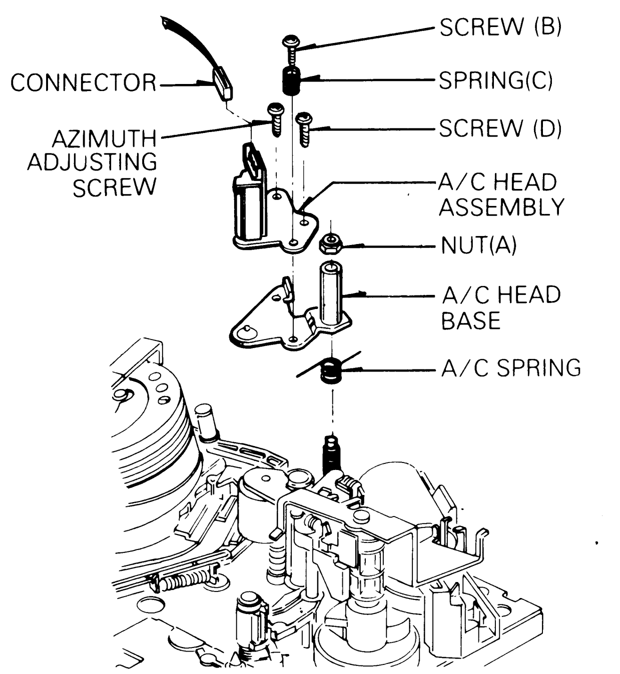

SCREW (B)
CONNECTOR
SPRING(C)
AZIMUTH ADJUSTING SCREW
SCREW (D)
A/C HEAD ASSEMBLY
NUT(A)
A/C HEAD BASE
A/C SPRING

Fig. B-4 A/C Head Assembly

5. Pinch Lever Assembly(Fig. B-5)

1) Remove one Nut, and then remove the Dew Bracket.
2) Lift up Pinch Lever Assembly.
3) Remove the Pinch Spring, and remove the Pinch Lever.
4) Remove the Stopper Spring and remove the Pinch Stopper by lifting it up when the Hook of Pinch Stopper is aligned with the hole of Pinch Arm while rotating the Pinch Stopper in the counterclockwise direction.
5) Remove the Pinch Cap, and then remove the Pinch Roller Assembly.

*** NOTE**

1) When disassembling and reassembling

① Be careful not to get any foreign substance on the Roller.

② When disassembling the Pinch Cap, be careful not to damage the Pinch Arm.

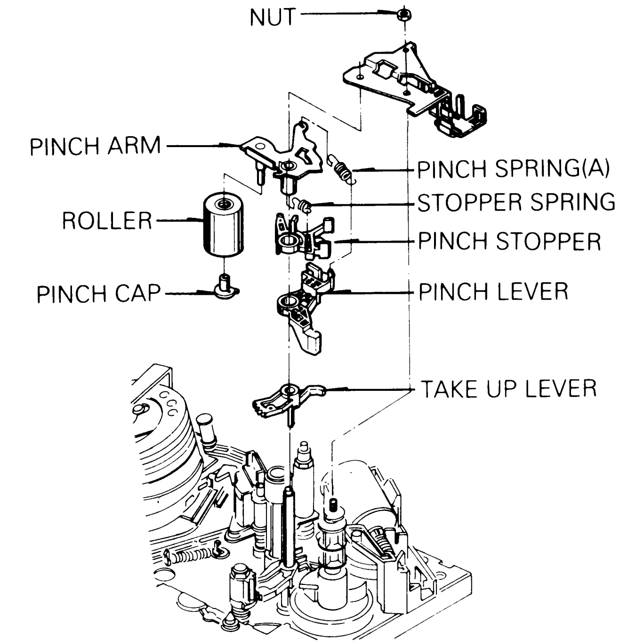

NUT
PINCH ARM
PINCH SPRING(A)
STOPPER SPRING
ROLLER
PINCH STOPPER
PINCH CAP
PINCH LEVER
TAKE UP LEVER

Fig. B-5 Lever Assembly Pinch

6. Loading Motor Assembly(Fig. B-6-1, B-6-2)

1) Remove the Dew Bracket.
2) Unplug the connector from the Junction P.C.B Assembly
3) Remove two screws(A).
4) Remove the worm wheel by pushing it down.
5) Remove the Loading Motor Assembly by pushing(C) and (D) outward.
6) Remove the worm Gear Assembly from the Loading Motor Assembly by pushing it.

*** NOTE**

1) When reassembling

① Make sure that the worm assembly is seated in the axis of Loading Motor.

② Two grooves(G) of Loading Motor should be turned up and two projections(F) of Bracket Assembly should be seated in each at the two holes(E)(Fig. B-6-1).

③ Take notice of the polarity of the Loading Motor.

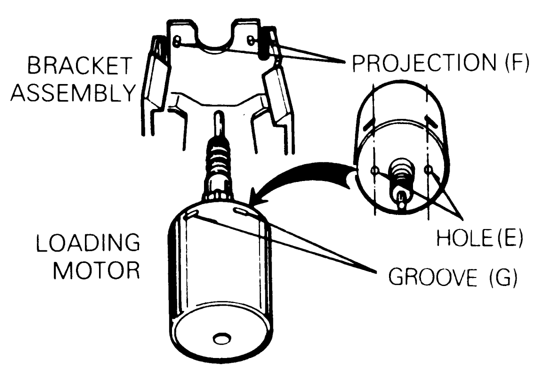

BRACKET ASSEMBLY
PROJECTION (F)
LOADING MOTOR
HOLE(E)
GROOVE (G)

Fig. B-6-1

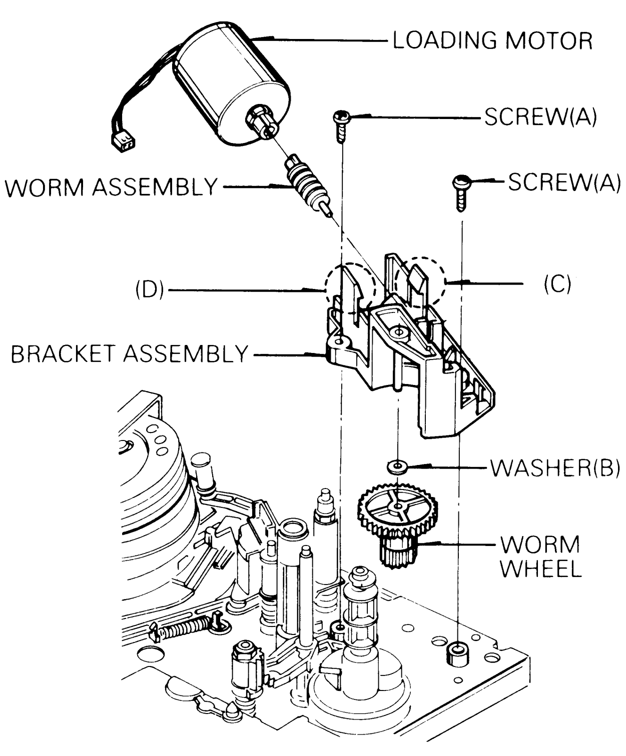

LOADING MOTOR
SCREW(A)
WORM ASSEMBLY
SCREW(A)
(D)
(C)
BRACKET ASSEMBLY
WASHER(B)
WORM WHEEL

Fig. B-6-2 Loading Motor Assembly

7. Take Up Lever(Fig. B-7)

1) Remove the Dew Bracket.
2) Remove the Pinch Lever Assembly.
3) Remove the Take-Up Lever by pushing the hook(A) outward.

*** NOTE**

1) When disassembling and reassembling

① When disassembling the Take-Up Lever, be careful not to break the Hook(A).

② When reassemble the Take-Up Lever, align the appendant Gear of Lever Take-Up with the appendant Gear of Take-up Arm

③ Reassemble the Take-Up Lever completely by hooking (A).

8. Take Up Arm Assembly(Fig. B-8)

1) Remove the Dew Bracket, Pinch Gear, and the Take-Up Lever
2) Remove one Nut(A).
3) Remove the Take-Up Arm Assembly by lifting it up.
4) Remove the spring(B).

*** NOTE**

1) When reassembling

① Align the Gear of Take-Up Arm with the Gear of Take-Up Lever.

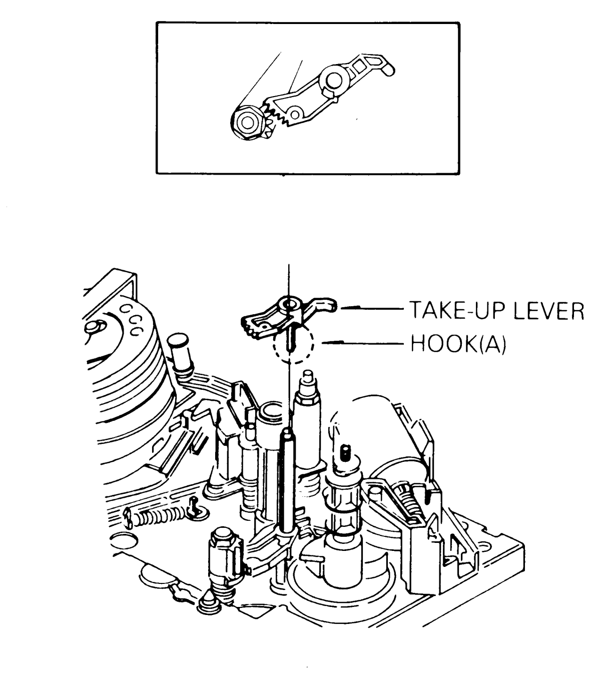

TAKE-UP LEVER
HOOK(A)

Fig. B-7. Take-Up Lever

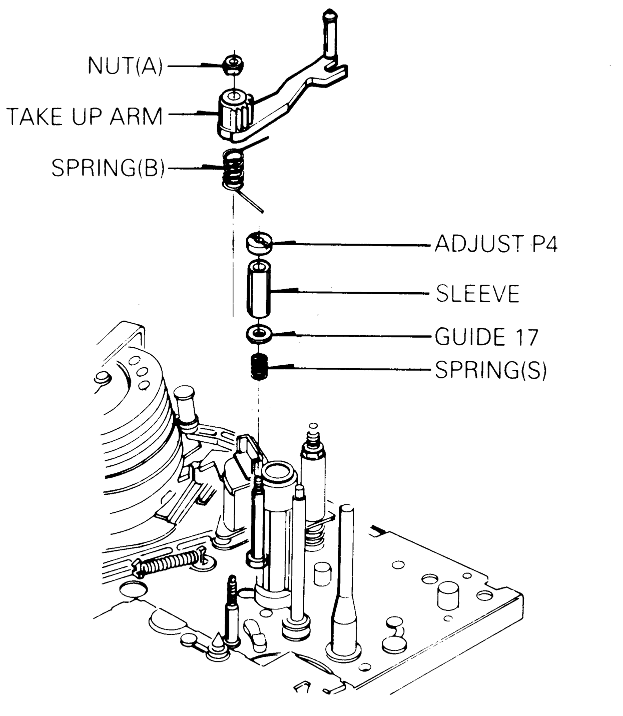

NUT(A)
TAKE UP ARM
SPRING(B)
ADJUST P4
SLEEVE
GUIDE 17
SPRING(S)

Fig. B-8 Take-Up Arm Assembly/P4

9. P4 Assembly(Fig. B-8)

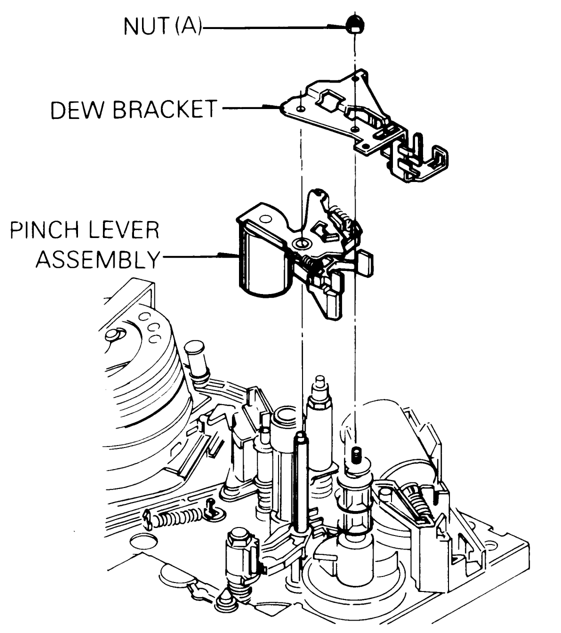
1) Remove the Adjust P4.
2) Remove the Sleeve.
3) Remove the Guide 17.
4) Remove the Spring.

10. Pinch Gear

1) Remove one Nut(A) and then remove the Dew Bracket.
2) Remove the Pinch Lever Assembly by lifting it up.
3) Remove the Loading Motor Assembly.
4) Remove the Take Up Lever.
5) Remove the Pinch Gear Assembly.

*** NOTE**

1) When reassembling, align the hole(A) of Pinch Gear with the hole of chassis, and the hole(C) of Pinch Gear with the groove(D) of the P.C.Gear. Hole(E) of chassis should be aligned with the hole of P.C.Gear.



NUT(A)
DEW BRACKET
PINCH LEVER ASSEMBLY

Fig. B-10-1 Pinch Gear Assembly

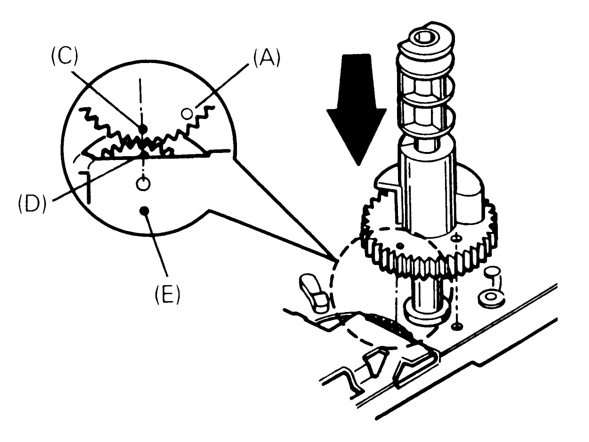


Fig. B-10-2 Pinch Gear

11. FE(Full Erase) Head Assembly(Fig. B-11)

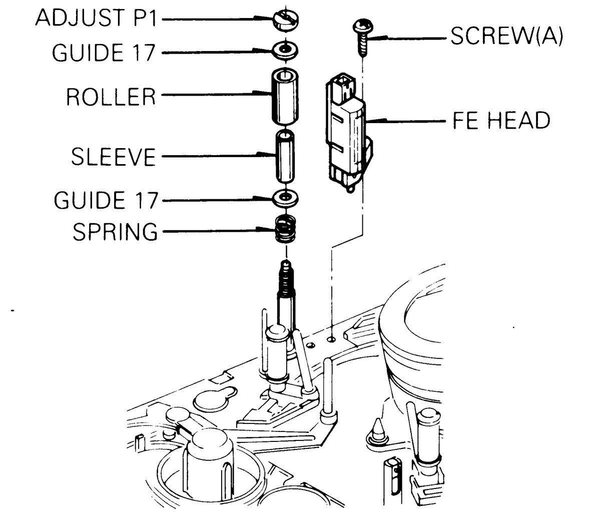
1) Unplug the connector.
2) Remove one screw(A), and then remove the FE Head.

*** NOTE**

1) When disassembling and reassembling
① Do not touch the Video Head Tip with fingers or tools.

12. P1 Assembly(Fig. B-11)

1) Remove the Adjust P1.
2) Remove the Guide 17.
3) Remove the Roller.
4) Remove the Sleeve.
5) Remove the Guide 17.
6) Remove the Spring.



ADJUST P1
GUIDE 17
ROLLER
SLEEVE
GUIDE 17
SPRING
SCREW(A)
FE HEAD

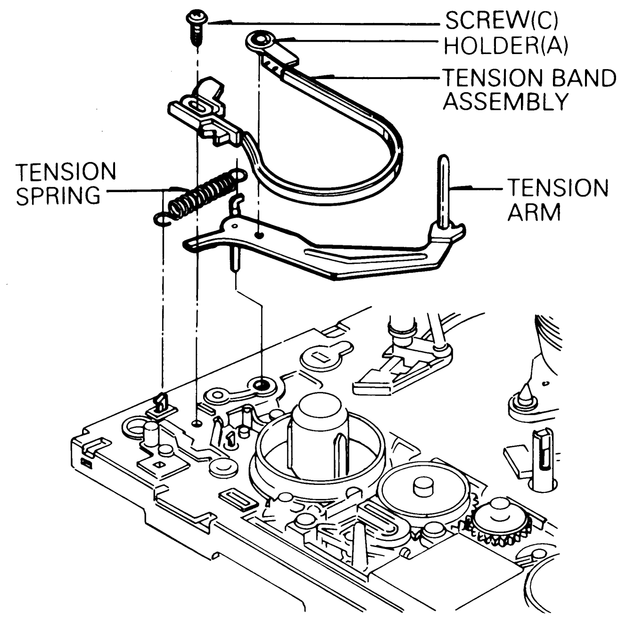
Fig. B-11 FE Head/P1

13. Tension Arm Assembly(Fig. B-13)

1) Remove one screw(C).
2) Remove the Tension Spring.
3) Remove the Tension Arm Assembly by pushing hooks outward with the Deck Mechanism Assembly turned over.
4) Remove the Tension Band Assembly from the Tension Arm by pushing Hooks of Holder(A).

*** NOTE**

1) When disasembling and reassembling, give special attention to the disassembling and reassembling of Tension Arm Assembly, because the Tension Band is interposed between the Supply Reel and the Soft Brake.

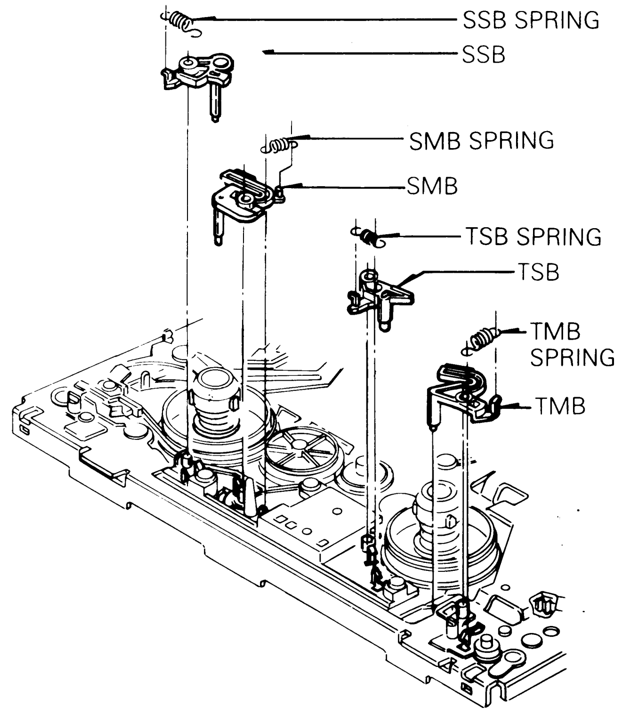


SCREW(C)
HOLDER(A)
TENSION BAND ASSEMBLY
TENSION SPRING
TENSION ARM

Fig. B-13 Tension Arm Assembly

14. Supply Soft/Supply Main/Take-Up Soft/Take-Up Main Brake Assembly

1) Supply Soft Brake(SSB)
   ① Remove the SSB Spring.
   ② Remove the SSB.
2) Supply Main Brake(SMB)
   ① Remove the SMB Spring.
   ② Remove the SMB.
3) Take Up Soft Brake(TSB)
   ① Remove the TSB Spring.
   ② Remove the TSB.
4) Take-Up Main Brake(TMB)
   ① Remove the TMB Spring.
   ② Remove the TMB.

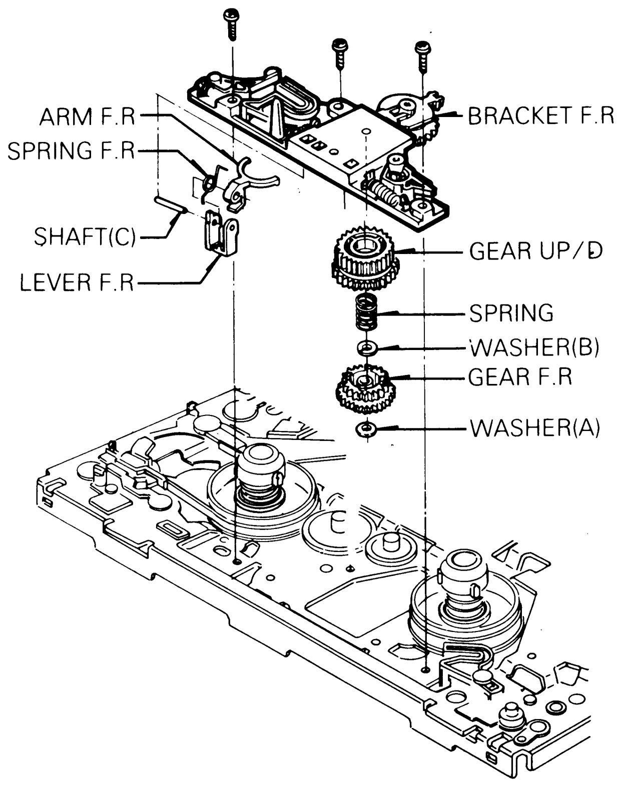


SSB SPRING
SSB
SMB SPRING
SMB
TSB SPRING
TSB
TMB SPRING
TMB

Fig. B-14 SMB/SSB/TMB/TSB

15. Bracket F/R(FF/Rewind) Assembly (Fig. B-15)

1) Remove the TMB.
2) Remove the Washer(A), and then remove the Gear F.R.
3) Remove three screws, and then remove Bracket F/R Assembly from the Deck Mechanism Assembly.
4) Remove the Washer(B), and spring Up/D, and then remove the Gear Up/D.
5) Remove the shaft(C), and then remove the Arm F.R, Lever F.R and Spring F.R.



ARM F.R
SPRING F.R
SHAFT(C)
LEVER F.R
BRACKET F.R
GEAR UP/D
SPRING
WASHER(B)
GEAR F.R
WASHER(A)

Fig. B-15 Bracket F.R Assembly

16. Supply Reel Assembly(Fig. B-16)

1) Remove the Tension Band Assembly.
2) Remove the Bracket F/R.
3) Lift up the Supply Reel Assembly from the Deck Mechanism Assembly.
4) Separate the Reel Cap from the Supply Reel by taking it out of Hooks(A).

*** NOTE**

1) When reassembling
① Make sure that the Supply and Take Up Reel are not exchanged.
② After reinstalling the Supply Reel Assembly, Adjust the Tension.

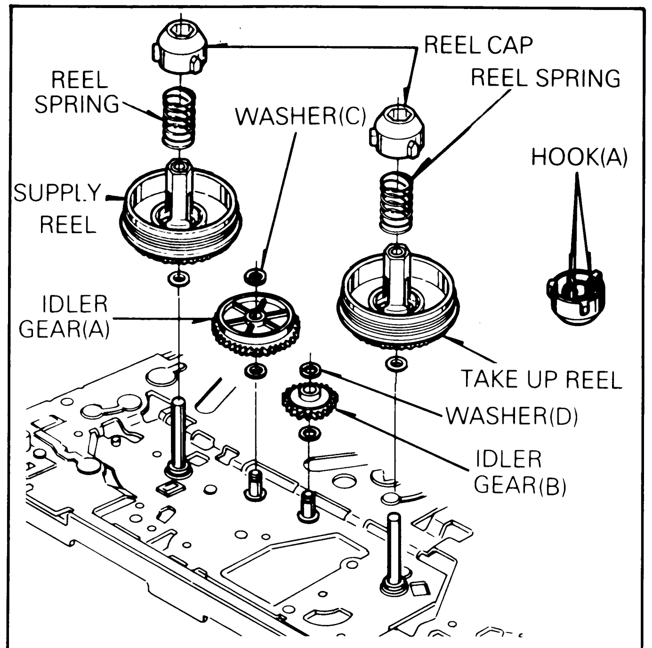

REEL CAP
REEL SPRING
REEL SPRING
WASHER(C)
HOOK(A)
SUPPLY REEL
IDLER GEAR(A)
TAKE UP REEL
WASHER(D)
IDLER GEAR(B)

Fig. B-16 Supply Reel Assembly

17. Idler Gear(A), (B)(Fig. B-16)

1) After removing the Supply Reel, and supply Main Brake Assembly, remove the washer(C) and remove the Idler Gear(A).
2) Remove the Washer(D) and remove the Idler Gear(B).

18. Pulley Gear Assembly(Fig. B-18)

1) Turn over the Deck Mechanism Assembly.
2) Remove the Capstan Belt.
3) Remove the Washer(A) and lift up the Pulley Gear.

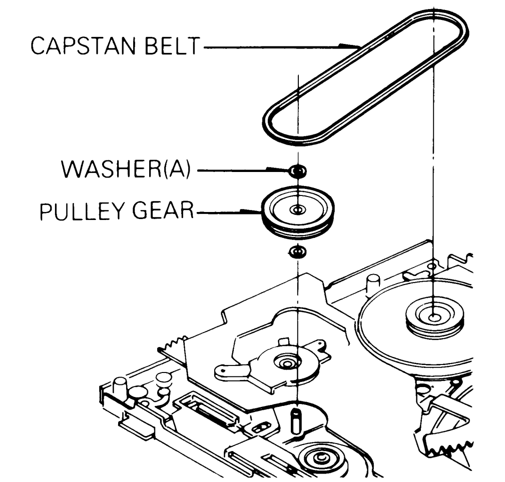

CAPSTAN BELT
WASHER(A)
PULLEY GEAR

Fig. B-18 Pulley Gear

19. Bracket Bottom Assembly(Fig. B-19)

1) Remove one screw(A).
2) Remove one Hexagonal Nut, and then lift up the Bracket Bottom Assembly.
3) Remove one Washer, and lift up the Ratchet Gear 1.
4) Remove the washer, and then remove Ratchet Gear 3 from the Bottom Bracket.

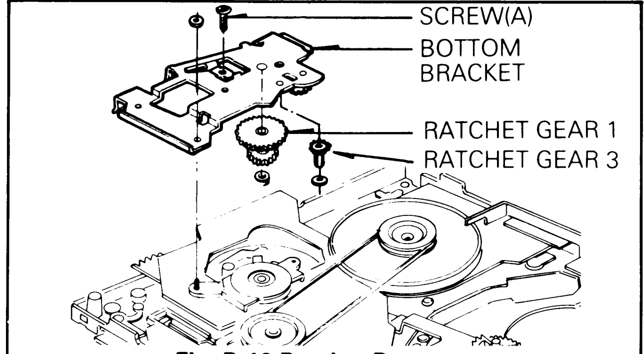

SCREW(A)
BOTTOM BRACKET
RATCHET GEAR 1
RATCHET GEAR 3

Fig. B-19 Bracket Bottom

20. Junction PCB(Printed Circuit Board) Assembly (Fig. B-20-1)

1) Remove the Bottom Bracket Assembly.
2) Remove two screws(A),(B) and then remove the Junction P.C.B Assembly.
3) Remove the Mode Switch from the Junction P.C.B Assembly.
4) Remove the Reel Sensors, Sensor LEDS and each holder from the Junction P.C.B(Fig. B-20-2).

*** NOTE**

1) When reassembling the Mode Switch, the groove(V) and (U) of Mode Switch should be at their original place in the Eject Mode.

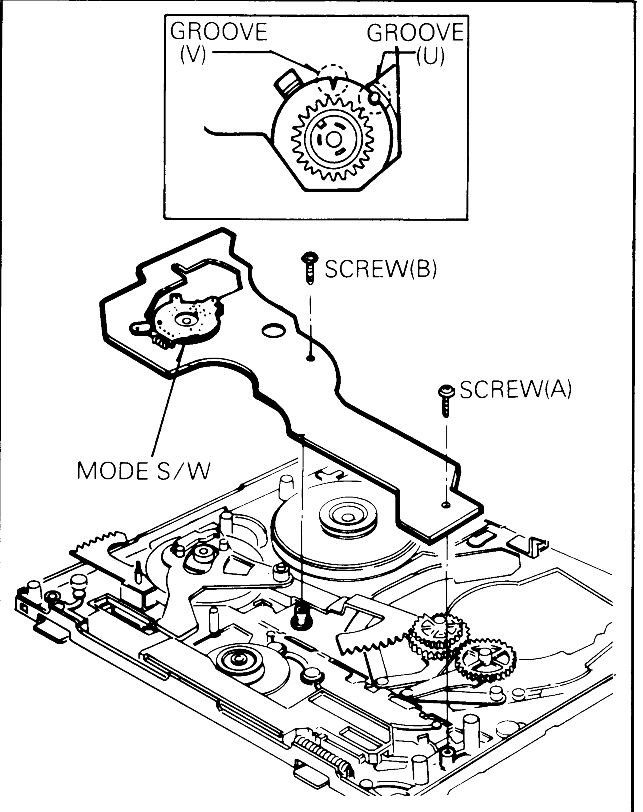

GROOVE (V)
GROOVE (U)
SCREW(B)
SCREW(A)
MODE S/W

Fig. B-20-1 Junction PCB Assembly

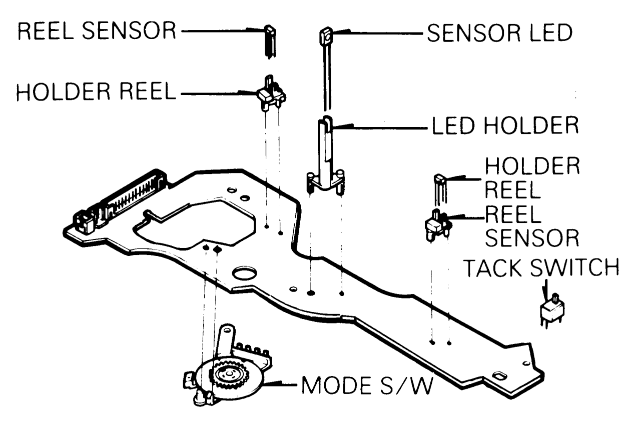

REEL SENSOR
SENSOR LED
HOLDER REEL
LED HOLDER
HOLDER REEL
REEL SENSOR
TACK SWITCH
MODE S/W

Fig. B-20-2 Mode S/W/Reel Sensor/Sensor Led

21. Capstan Motor and Brake Assembly (Fig. B-21-1)

1) Remove the Junction P.C.B Assembly
2) Hook the end of Capstan Brake Spring to the projection of Capstan Brake and then remove the Capstan Brake Assembly by lifting it up(Fig. B-21-2).
3) Remove two Screws(A), and then remove the Bracket C-Guide.
4) Remove the Connector.
5) Remove three screws(B), and then remove the Capstan Motor Assembly from the Deck Mechanism Assembly.

*** NOTE**

1) When disassembling and reassembling, hook end of the spring on the projection of Cap-Brake and remove it by lifting it up. Reassemble it in the opposite manner.

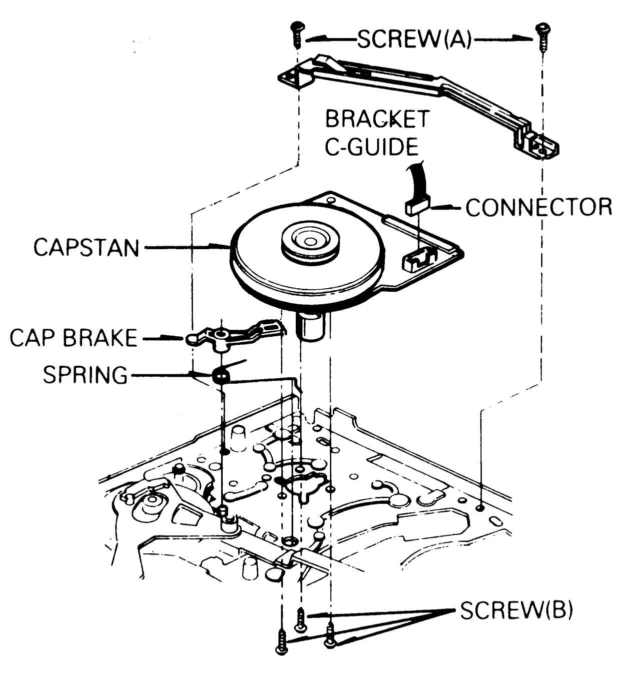

SCREW(A)
BRACKET C-GUIDE
CONNECTOR
CAPSTAN
CAP BRAKE
SPRING
SCREW(B)

Fig. B-21-1 Capstan Motor Assembly

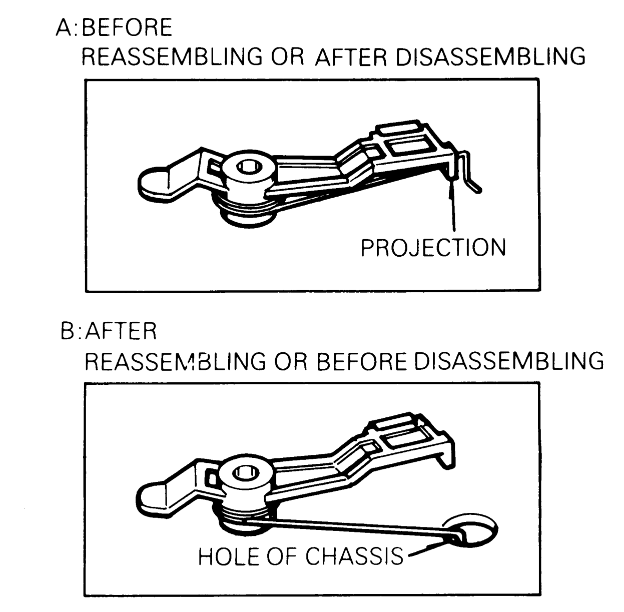

A:BEFORE
REASSEMBLING OR AFTER DISASSEMBLING
PROJECTION
B:AFTER
REASSEMBLING OR BEFORE DISASSEMBLING
HOLE OF CHASSIS

Fig. B-21-2 CAP Brake Assembly

22. Function Plate(Fig. B-22)

1) Remove two screws(B) in Eject Mode.
2) Remove the Function Plate Spring.
3) Remove the Function Plate.

*** NOTE**

1) When reassembling, the groove of Lower part of Function Plate should be aligned with the shaft of Tension Lever Assembly(Fig. B-28).

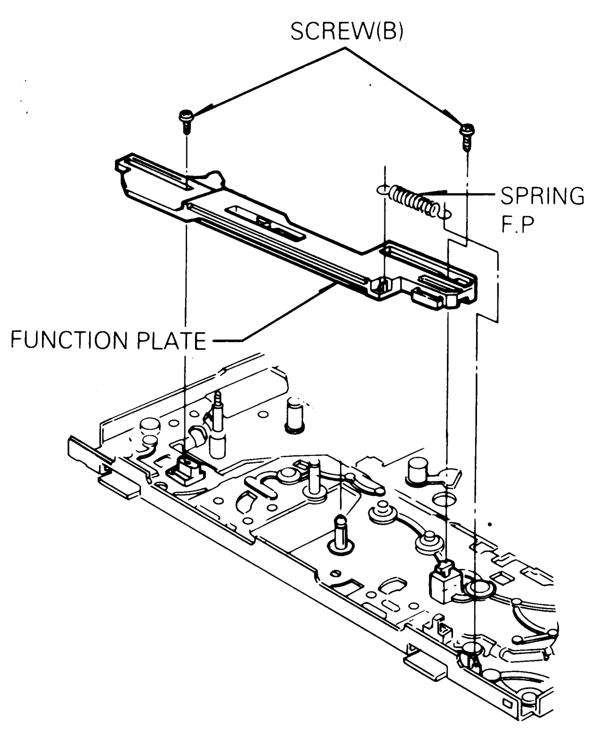

SCREW(B)
SPRING F.P
FUNCTION PLATE

Fig. B-22 Function Plate

23. Ratchet Lever Assembly(Fig. B-23)

1) Remove the Function Plate.
2) Remove the Junction P.C.B Assembly.
3) Remove the Washer(A) and then remove the Ratchet Lever Assembly.
4) Remove the Ratchet Spring.
5) Remove the Ratchet Lever from the Ratchet 17 by lifting it up when the hook of it is aligned with the hole of Ratchet 17 while rotating it counterclockwise direction.
6) Remove the Washer(B), and turn over the Ratchet 17 and then remove the Slant Pin, Spring F, Lever.

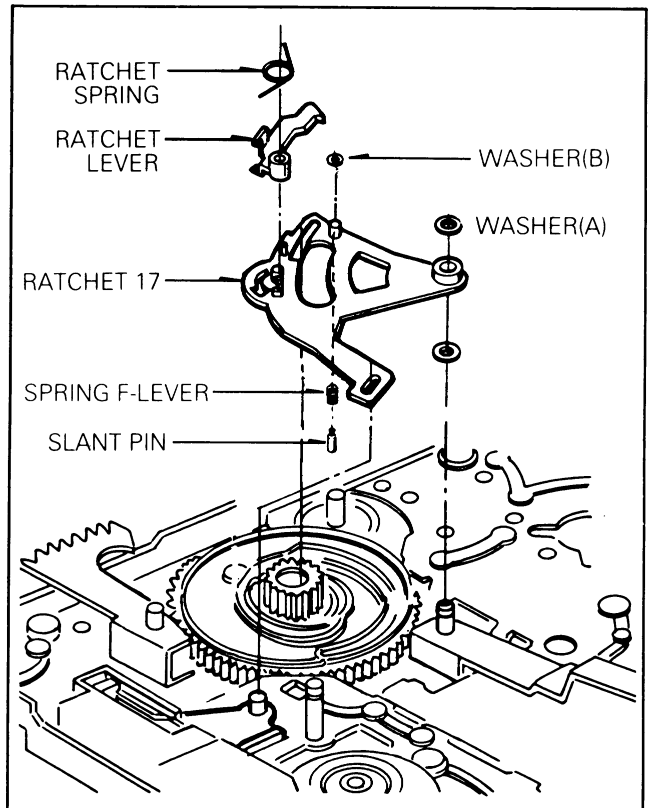


Fig. B-23 Ratchet Lever Assembly

24. Cam Gear/Rack Gear T/Rack Gear FL(Fig. B-24-2)

1) Remove the washer(A) and remove the Ratchet Lever Assembly.(Fig. B-24-1).
2) Remove the washer(B), and then remove the Cam Gear (Fig. B-24-2).
3) Remove the Rack Gear F.L.(Fig. B-24-3)
4) Remove the Rack Gear T.(Fig. B-24-3)

*** NOTE**

1) When reassembling

① Align the Projection of Rack Gear T with the hole of Loading Gear.

② Drive the Rack Gear F.L in the direction of arrow(D).

③ Hole of Cam should be aligned with the hole of chassis, and the groove(■) of Cam Gear should be aligned with the hole of PC Gear(Fig. B-25)

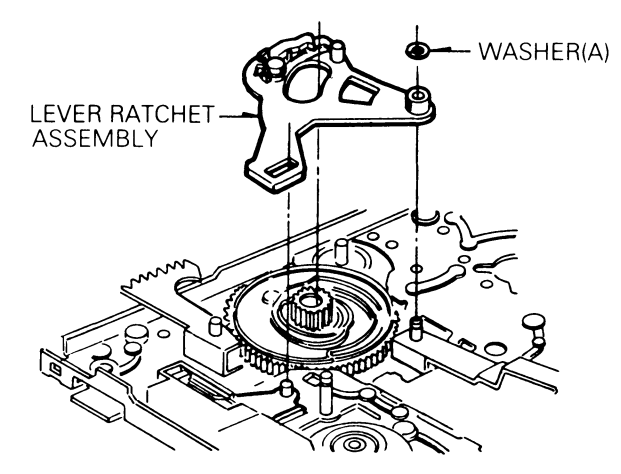


Fig. B-24-1 Lever Ratchet Assembly

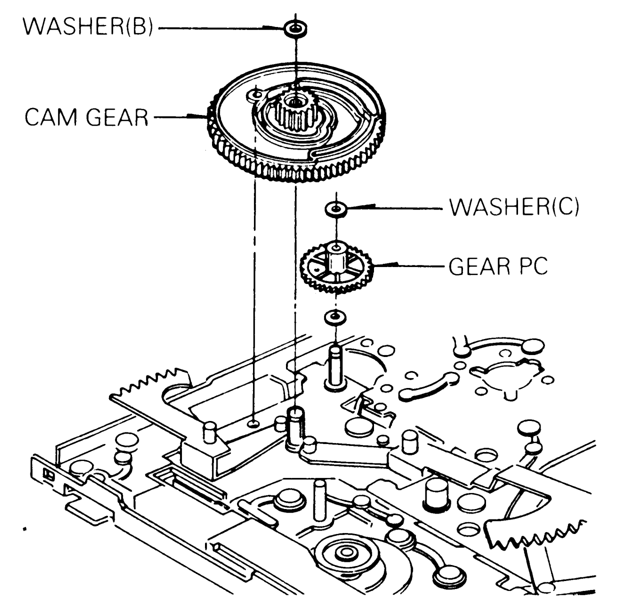


Fig. B-24-2 CAM/PC Gear

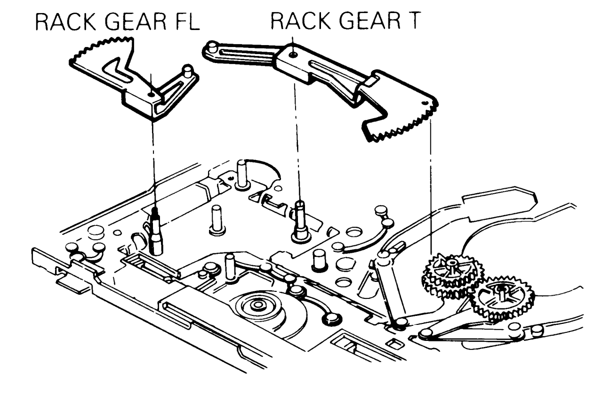


Fig. B-24-3 Rack Gear F.L/Rack Gear T

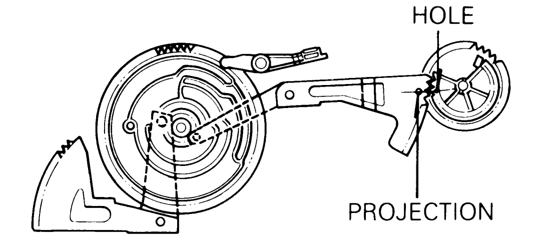


Fig. B-24-4 Rack Gear F.L/Rack Gear T/CAM Gear

25. PC Gear(Fig. B-25)

1) Remove the washer(C).
2) Remove the P.C Gear by lifting it up.

*** NOTE**

1) When reassembling

① The Groove of PC Gear should be aligned with the groove(V) of Cam Gear, and another hole of it should be aligned with the hole of chassis (Fig. B-25).

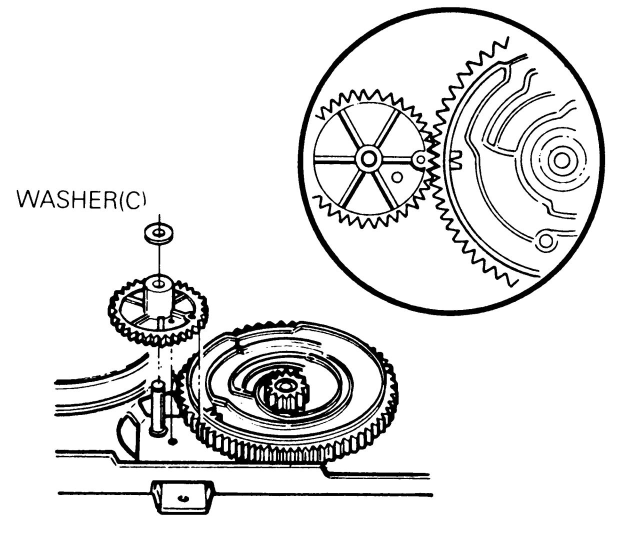


Fig. B-25 PC Gear

26. P2 and P3 Slant Assembly(Fig. B-26)

1) After finishing the disassembly of Drum Assembly, remove the P2 and P3 Slant Assembly by turning the Loading Gear(R) in the clockwise direction.(Loading direction)
2) Loosen the set screws.
3) Remove the Roller Guide from the Slant Base.

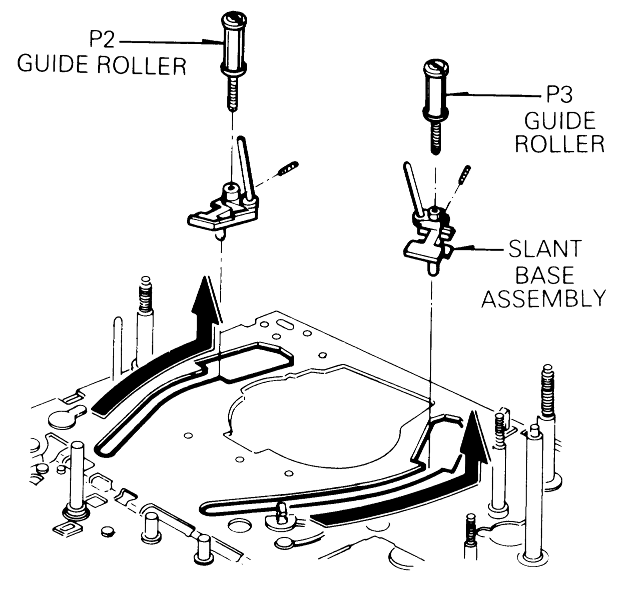


Fig. B-26 Slant Assembly

*** NOTE**

1) When disassembling and reassembling

① Use a Hexagonal wrehch to remove set screw.

② Take notice that the P2 and P3 Slant Assembly should not be changed from their original place.

27. Loading Gear Assembly(L),(R) (Fig. B-27)

1) Remove the Cam Gear, Rack-T.
2) Remove the P2 and P3 Slant Assembly by turning the Loading Gear(L),(R) in the Loading direction
3) Lift up the Loading Gear Assembly(L),(R) from the Deck Mechanism Assembly.
4) Remove the Spring Load(L),(R).
5) Separate the Loading Gear(L), (R) from Lever Load(L),(R).

*** NOTE**

1) When reassembling

① Make sure that the Loading Gear(L) and (R) should not be changed from their original place.

② Align the groove of Loading Gear(L),(O) with the groove of Gear(R),(O).

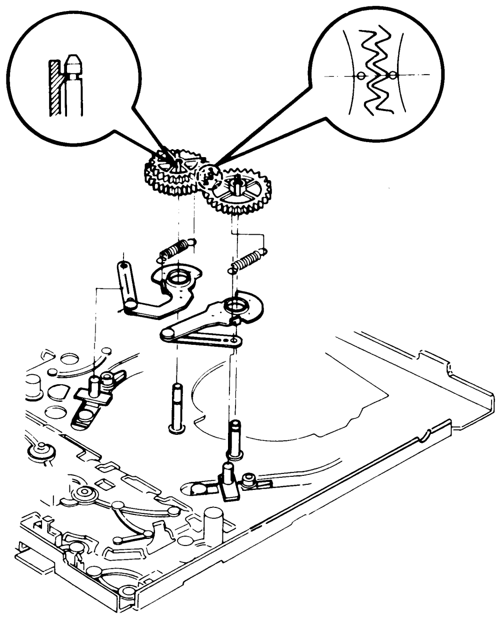


Fig. B-27 Loading Gear Assembly

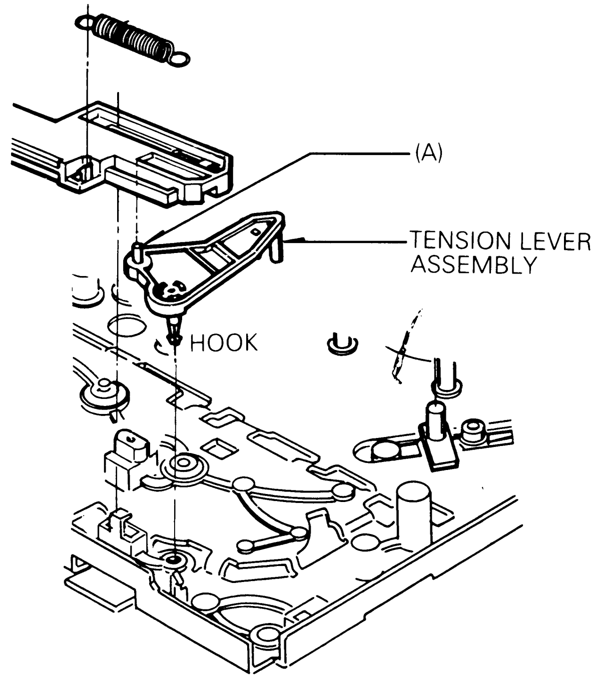


Fig. B-28 Tension Lever Assembly

28. Tension Lever Assembly(Fig. B-28)

1) Remove the Function Plate.
2) Remove the Tension Lever Assembly by pushing hooks inward.

*** NOTE**

1) When reassembling

① Set the part(A) of Tension Lever Assembly in the groove of Lower part of Function Plate.

② After reinstalling the Tension Lever Assembly, adjust the Tension Post and the Tension with a Tension Cassette.

29. Clutch Gear Assembly(Fig. B-29)

1) Remove the Pulley Gear.
2) Remove the Plate Function.
3) Remove the washer(A), and then remove the Clutch Gear Assembly.

*** NOTE**

1) When reassembling

① Do not disassemble the Clutch Gear Assembly any further, because Torque adjustment is not adjustible.

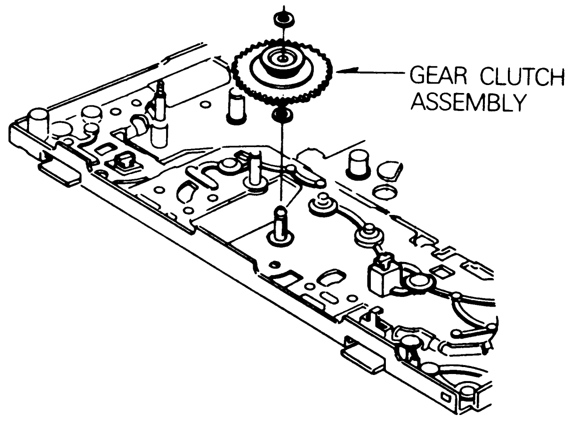


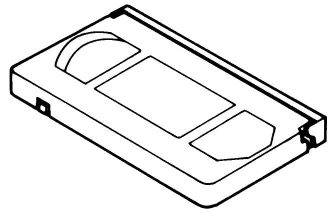
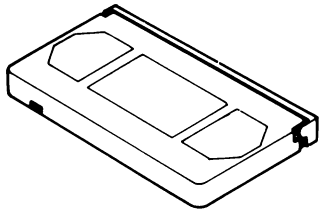
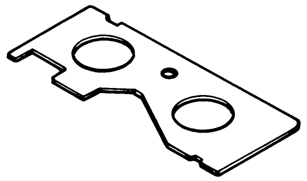
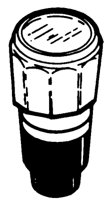
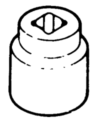
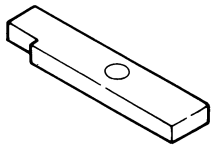
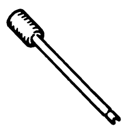
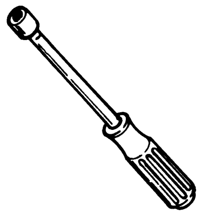
Fig. B-29 Gear Clutch Assembly

30. Take Up Reel Assembly(Fig. B-16)

1) Remove the TMB(Fig. B-14)
2) Lift up the Take-up Reel Assembly from the Deck Mechanism Assembly.
3) Separate the Reel Cap and Spring from the Take-Up Reel by releasing Hooks(S).

MECHANISM ADJUSTMENTS

- **Tools and Fixtures for Deck**

1. Back tension meter Parts No ; D00-D006 	2. NTSC alignment tape Parts No NTSC ; DTN-0001 PAL ; DTN-0002 	3. Master plane Parts No ; RJ10028 
4. Torque gauge Parts No ; D00-D002 	5. Torque gauge adaptor Parts No ; D09-R001 	6. Reel table height fixture Parts No ; RJ10027 
7. Post height adjusting driver Parts No ; DTL-0005 	8. M3 Nut driver Parts No ; DTL-0006 	

1. Mechanism State Switch(Mode Switch) Check

Purpose: To detect accurately the mechanism state and prevent the mechanism from malfunction.

Test Equipment/Fixture	VCR State	Check Point
● Blank tape	● Eject Mode (with cassette ejected)	● Mechanism state switch (Mode Switch and Cam)

Check Procedure

1) Turn the VCR on and eject the tape by pressing eject button.
2) Remove the Cabinet Top and Main P.C.Board,and then turn the Cam so as to align the hole of chassis with the hole of Cam and Pinch Gear, and Holes of Pinch Gear and P.C Gear with each other.
3) Remove the Bottom Cover and then check that the grooves(V) and (O) of Mode S/W are at their original place.
4) If the above alignment is not obtained, adjust as follows.
   (1)Remove the Bracket Assembly Bottom and the Capstan Belt in the state of power off.
   (2) Remove the P.C.B Assembly, place the grooves (V) and (O) of mode switch at their original place, and then reassemble the P.C.B Assembly.
   (3) Turn the power on and perform the various operations to check that the loading and the unloading are correct.

Check Diagram

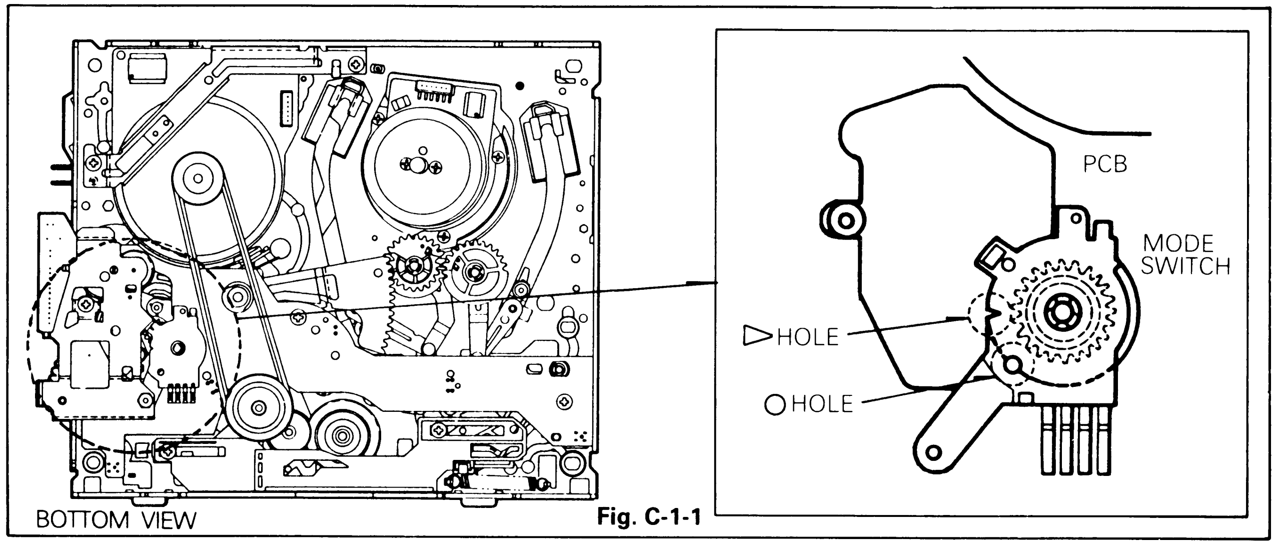


Fig. C-1-1

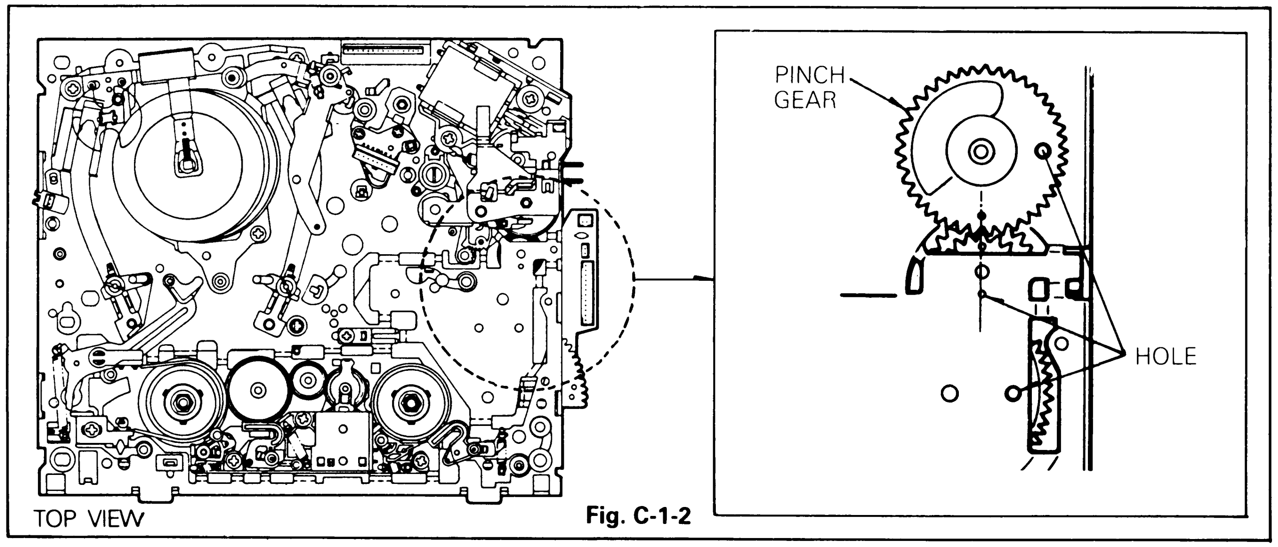


Fig. C-1-2

2. Preparation for Adjustment(To set VCR to the loading state without inserting a cassette)

1) Unplug the power cord from the AC outlet.
2) Remove the Cabinet Top and Front Loading mechanism.
3) Plug the power cord into the AC outlet.
4) Turn the VCR on and push the tact switch in the PCB Assembly.
   The VCR can accept input of each mode in this case. However the rewind and review operation cannot be performed for more than a few seconds because the take-up reel table is in the stop state and reel pulses cannot be detected.

(NOTE)

Always return the VCR to the Front Loading Mechanism Assembling State in the following order after the above operations have been performed.

1) Press the Eject button after turning the power on.
2) Wait for about 10 seconds until searching out the assembly position.
3) Assemble the Front Loading Mechanism and connect the Front Loading Mechanism Connector.
4) Refer to the "Front Loading Mechanism Disassembly" which is described previously.

3. Reel Table Height Adjustment

Purpose: To set the reels of the cassette to the specified height, thus determine the height of tape.

Test Equipment/Fixture	Preparation for adjustment	VCR State	Adjustment Points
● Master Plane ● Reel Table Height Fixture	1) Remove the Front Loading Mechanism 2) Mount the Master Plane and place the Reel Table Height Fixture on it.		● Washer under the Supply and Take-Up Reel Tables.

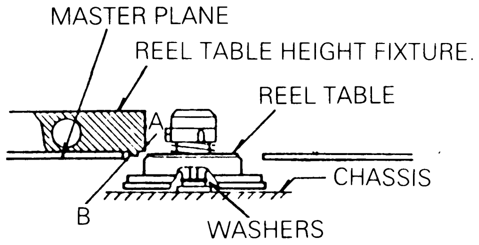
Adjustment procedure

1) Check that the Reel Table is between sections A and B of the Reel Table Height Fixture.
2) If the table is not between sections A and B of the Fixture, replace the washers(two types, 0.3mm and 0.5mm thick) in the Reel Table or adjust them.

****CAUTION****

When the Tension Arm and Tension Band are removed, adjust the tension post position and tension after reinstalling them.

Adjustment Diagram



SUPPLY AND TAKE-UP REEL TABLE

Fig. C-3

4. Tension Post Position and Tension Adjustment

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized.

Test Equipment/Fixture	VCR State	Adjustment Point
● Tension Meter (Tension adjustment)	● Play without cassette and with a Tension Meter	● Holder Band(A)

Adjustment Procedures

〈Position Adjustment〉

1) Perform loading without inserting a tape and loosen the screw that attaches the Band Holder(B) to the D-Deck Mechanism Assembly.
2) Insert the (—)type driver between the Band Holder(B) and the "V" groove of the chassis.
3) Move the Band Holder(B) right and left and align the center of tension post with the center of P1.
4) Tighten the screw that attachs the Band Holder(B) to Deck Mechanism Assembly.

〈Tension Adjustment〉

1) Play the Tension Meter and read the Tension Meter:35g·cm±2.5g·cm(reference value).
2) If the result is abnormal.
   (1) over the standard:loosen the screw, move the Band Holder(B) right a little and then tighten the screw and make sure that this adjustment is correct.
   (2) below the standard:loosen the screw, move the Band Holder(B) left a little and then tighten the screw and make sure that this adjustment is correct.

****CAUTION****

The range of movement of Band Holder(B) should be within ±1.5mm while being adjusted.
If the range is over, you should recheck the Reel Brake, Tension Arm and Spring.

Adjustment Diagram

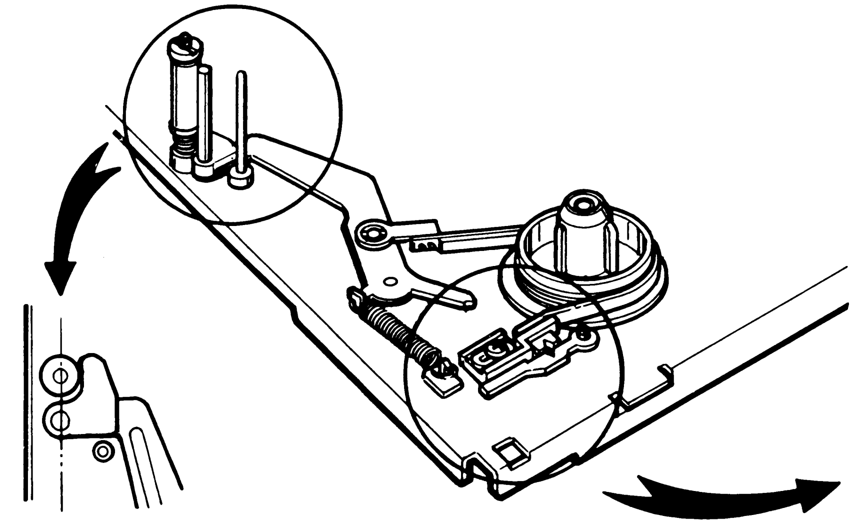


Fig. C-4-1

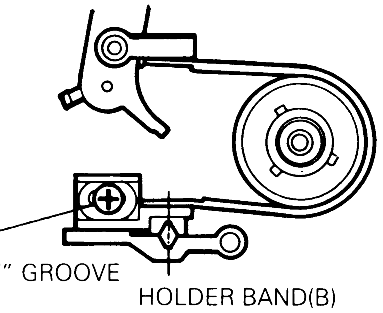


Fig. C-4-2

5. Checking Torque

Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape run smoothly and satisfy the basic performance of the VCR. Check these if the tape does not run smoothly or the tape speed is abnormal.

Test Equipment/Fixture	VCR state
● Torque Gauge ● Torque Gauge Adaptor	● Set the VCR to each operation mode without inserting a cassette. (See '2 Preparation for Adjustment')

Item	VCR Operation mode	Measurement Reel	Measurement Values
Main brake torque.	Eject	Supply and take-up reels	600g.cm or more
Slack removal torque	Unloading(power off)	Supply reel	110∼200g·cm
Fast forward torque	Fast forward	Take-up reel	400g·cm or more
Rewind torque	Rewind	Supply reel	400g·cm or more
Play take-up torque	Play	Take-Up reel	90∼130g·cm

Checking Method

The values are measured by using a torque gauge and torque gauge adaptor with the torque gauge fixed.

Note: This value is measured when the VCR is shifted in the unloading direction from the fast forward or rewind mode and quick braking is applied to both Reel Tables.

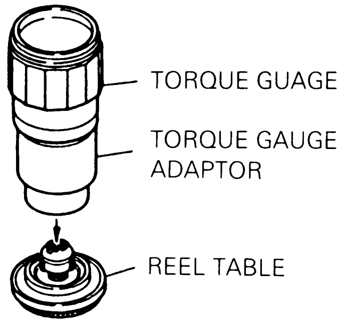


Fig. C-5

6. Guide Post Height Adjustment

Purpose: To control tape height

Test Equipment/Fixture	VCR State	Adjustment Point
● Master Plane ● Blank Tape ● Reel Table Height Jig ● Post Height Adjusting Driver ● M3 Nut Driver	● Mount the Master Plane and place the Reel Table Height Jig on it.	● Nuts on Impedance Roller ● Guide Post

1) Set the clearance between the bottom of the P1 Roller Flange and under cut of Reel Table Height Fixture to 0~0.1mm(Fig. C-6-1).
2) Set the clearance between the bottom of the Guide Post upper flange and top of the Reel Table Height Jig to 0~0.2mm(Fig. C-6-2).
3) Load and run the Tape and check that the tape does not ride over the upper and lower flanges of the guide post.
4) If the tape rides over either flange, adjust the height of P1 Roller and Guide Post as follows(Fig. C-6-3).
   - If the tape rides over the upper flange, turn the nut counterclockwise.
   - If the tape rides over the lower flange, turn the nut clockwise.

Adjustment Diagrams

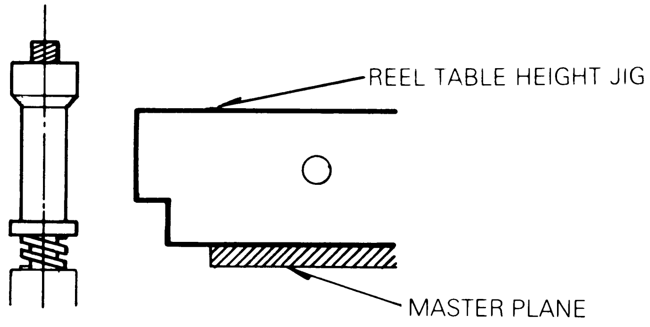

REEL TABLE HEIGHT JIG
MASTER PLANE

Fig. C-6-1

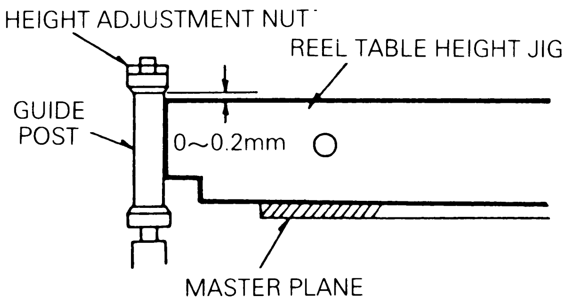

HEIGHT ADJUSTMENT NUT
REEL TABLE HEIGHT JIG
GUIDE POST
0~0.2mm
MASTER PLANE

Fig. C-6-2

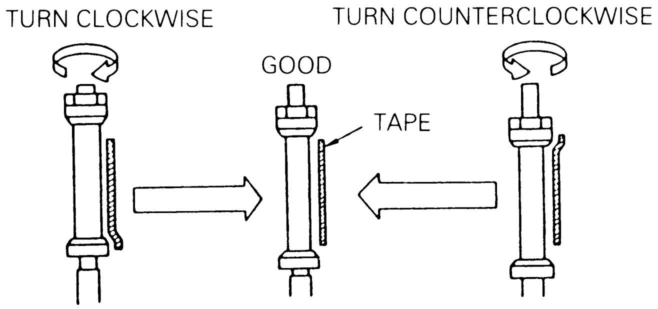

TURN CLOCKWISE
TURN COUNTERCLOCKWISE
GOOD
TAPE

Fig. C-6-3

7. Guide Roller Height Adjustment

Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the lower drum.

A. Coarse Adjustment

Test Equipment/Fixture	VCR State	Adjustment Point
● Master Plane ● Reel Table Height Fixture ● Hexagonal Wrench ● Post Height Adjusting Driver	● Mount the Master Plane and place the Reel Table Height Fixture on it.	● Roller Guide Height Adjustment Screws on the Supply and Take-Up Guide Rollers.

Adjustment Procedure

1) Align the bottom of the Guide Roller's upper flange and the top of the Reel Table Height Fixture.
2) Perform the precise adjustment next.
3) When the Guide Roller is damaged, release the Guide Roller retaining screw and then replace the Guide Roller.

Adjustment Diagram

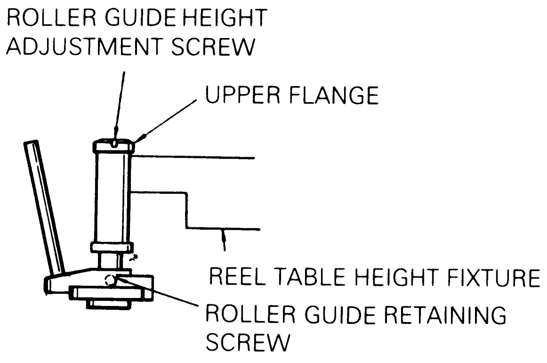

ROLLER GUIDE HEIGHT ADJUSTMENT SCREW
UPPER FLANGE
REEL TABLE HEIGHT FIXTURE
ROLLER GUIDE RETAINING SCREW

Fig. C-7-1

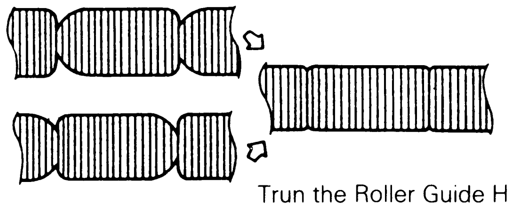
B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Point
● Oscilloscope ● Post Height Adjusting Driver ● Alignment Tape ● Hexagonal wrench	● CH-1:PB RF Envelope ● CH-2:SW 3-Hz ● Head Switching Output Point ● RF Envelope Output Point	● Play an alignment tape	● Guide Roller Height Adjustment Screws.

Adjustment Procedure

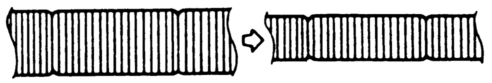
1) Play an alignment tape after connecting the probe of the oscilloscope to RF Envelope Output Test Point and Head Switching Output Test Point.
2) Tracking control(in PB mode):Center position(When this adjustment is performed after the drum assembly has been replaced, set the tracking control so that the RF output is maximum.)
3) Height adjustment screw:Flatten the RF waveform.
4) Turn(Move) the tracking control(playback) clockwise and counterclockwise.(to the right and left)
5) Check that the drops of RF output are uniform at the start and end.

Waveform Diagrams



Trun the Roller Guide Height Adjustment Screw slightly to flatten the waveform.

Fig. C-7-2

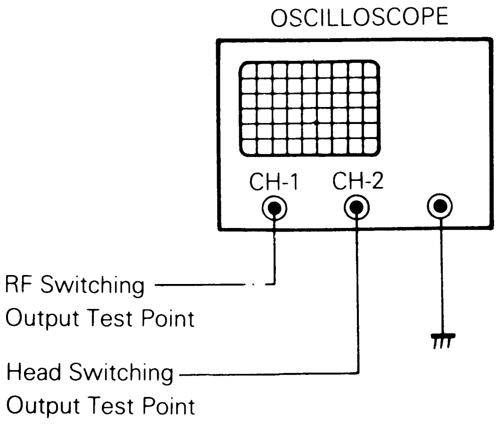


Tracking control at center

Turn(Move) the tracking control to both directions.

Fig. C-7-3

Connection Diagram


OSCILLOSCOPE
CH-1
CH-2
RF Switching Output Test Point
Head Switching Output Test Point

8. Audio/Control(A/C) Head Adjustment

Purpose: To keep the contact between the tape and head so that the specificed track is recorded and played back.

A. Coarse Adjustment

Test Equipment/Fixture	VCR State	Adjustment Points
● Master Plane ● Reel Table Height Fixture ● M3 Nut Driver	● Mount the Mater Plane and place the Reel Table Height Fixture on it.	● Special screw ● Cone Point Screw for tilt ● Azimuth Adjustment Screw ● A/C Head Adjuster
● Blank tape	● Run the blank tape	

Adjustment procedure/Adjustment Diagram

1) Tighten the spring section of the special screw so that it protrudes 6.4mm(approx.) over the top of Head Base(1).

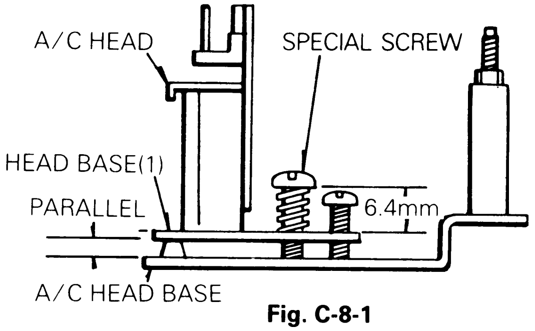


Fig. C-8-1

2) Turn the Azimuth Adjustment Screw and Cone Point Screw so that the Head Base(1) and A/C Head Base are parallel.

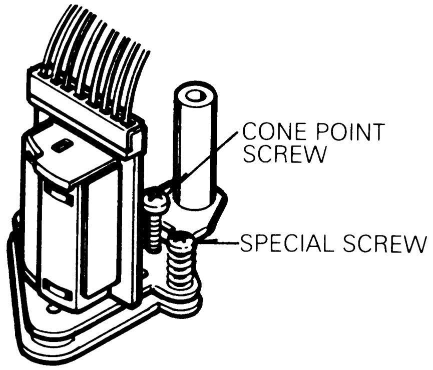


Fig. C-8-2

3) Turn the A/C Head Adjuster until the clearance between the Master Plane and Head Base(1) is approx 1.2mm.

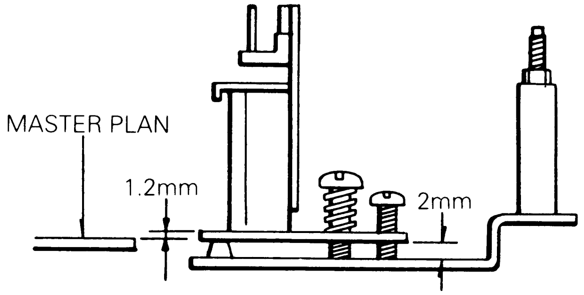


Fig. C-8-3

4) Remove the adjustment fixture, load a blank tape and set the VCR to the play mode.
5) Check that there is no conspicuous curling and riding over around the A/C head. If there is conspicuous curling or riding over, readjust the Cone Point Screw, Azimuth Adjustment Screw and A/C Head Adjuster. When the bottom edge of tape is 0.20~0.25mm from the bottom edge of the control head's core, the height of A/C head is ideal.

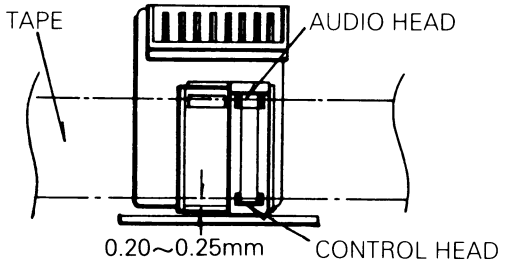


Fig. C-8-4

6) Perform the precise adjustment continuously.

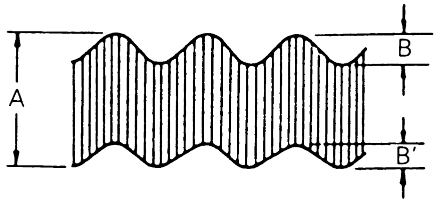
B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Point	VCR State	Adjustment Points
● Oscilloscope	● Audio output jack	● Play an alignment tape 1KHz, 7KHz sections	● Azimuth Adjustment Screw ● A/C Head adjuster ● Cone point screw
● Alignment tapes ● M3 Nut Driver			

Adjustment Procedure

1) Connect the probe of oscilloscope to audio output jack.
2) Adjust the Azimuth Adjustment Screw, A/C Head adjuster and cone point screw slightly and alternately so that a Audio 1KHz output is maximum and flat.(minimum fluction)
3) Adjust the Azimuth Adjustment Screw slightly and alternately so that the Audio 7KHz output is maximum.

Waveform Diagram



A:Maximum BB':Minimum

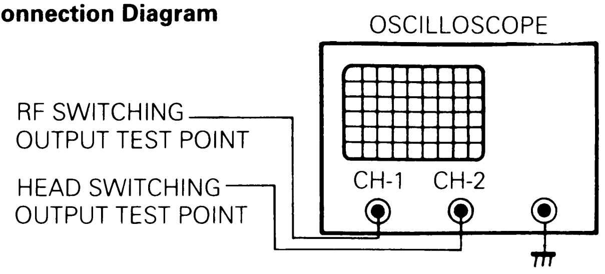
Fig. C-8-5

9. X-Value Adjustment

Purpose: To obtain compatibility with other VCRs.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
● Oscilloscope ● Alignment tapes ● Post Height Adjusting Driver	● CH-1:PB RF Envelope ● CH-2:SW 30Hz ● Head Switching Output Test Point ● RF Envelope Output Test Point	● Play an alignment tape	● X Adjust

Connection Diagram


OSCILLOSCOPE
RF SWITCHING OUTPUT TEST POINT
HEAD SWITCHING OUTPUT TEST POINT
CH-1
CH-2

1) Insert a cassette tape, and then "AUTO TRACKING" will be displayed on the Digitron, then push the Tracking ⊕ or ⊖ Keys one time as soon as possible to make the VCR release the Auto Tracking.
2) Turn the Adjust X to the maximum RF Envelope level when the VCR is free from the Auto tracking.
3) If RF envelope output is maximized from the center click position in right direction(clockwise), set the tracking control to the center and turn the X Adjust counterclockwise.
4) If in left direction(counterclockwise), turn it clockwise by same method.
5) In case of the 30 μ m, head will trace over a 60 μ m width track, readjust it so that RF Envelope output begins falling at the same angle when tracking control is turned either left or right.

Adjustment Procedure

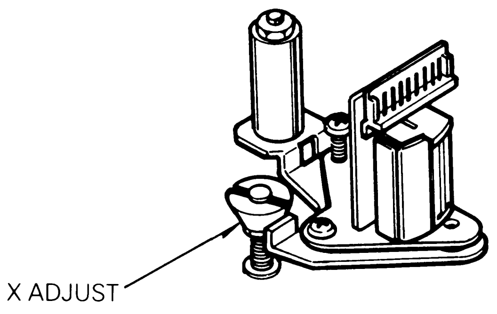


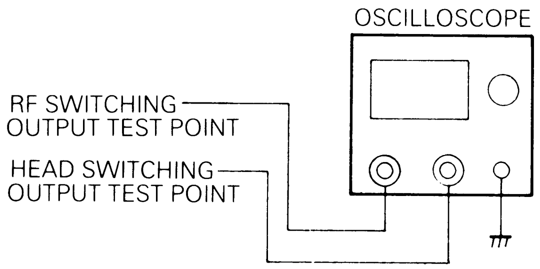
Fig. C-9

10. Adjustment after Replacing Drum Assembly(Video Heads)

Purpose: To suppress drift in the height relative to the Guide Roller and drift of the X Value after replacing the drum.

Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Points
● Oscilloscope ● Post Height Adjusting Driver ● Alignment tape ● Blank tape ● M3 Nut Driver	Checking the flatness ● CH-1:PB RF Envelope ● CH-2:SW 30Hz ● Head Switching Output Point ● RF Envelope Output Point	● Run the blank tape ● Play an alignment tape	● Guide Rollers Precise Adjustment ● Switching point ● Tracking point ● X-Value

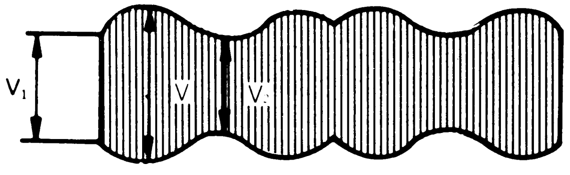
Connection Diagram


OSCILLOSCOPE
RF SWITCHING OUTPUT TEST POINT
HEAD SWITCHING OUTPUT TEST POINT

Checking/Adjustment Procedure

1) Run the blank tape, check and adjust whether the Roller Guide is curling or creasing tape around the Roller Guide.
2) Check the RF envelope output flatness and adjust the Roller Guide Height while playing an alignment tape.
3) Adjust the head switching point.
4) Check that RF envelope output is maximum when the tracking is at the center click position.
5) Adjust the Tracking Preset and X-Value Adjust with X Adjust.

Waveform Diagram



V_1/V MAX $\geqslant$ 0.7
V_2/V MAX $\geqslant$ 0.8
RF ENVELOPE OUTPUT

Fig. C-10

11. Maintenance/Inspection Procedure

(1) Required Maintenance

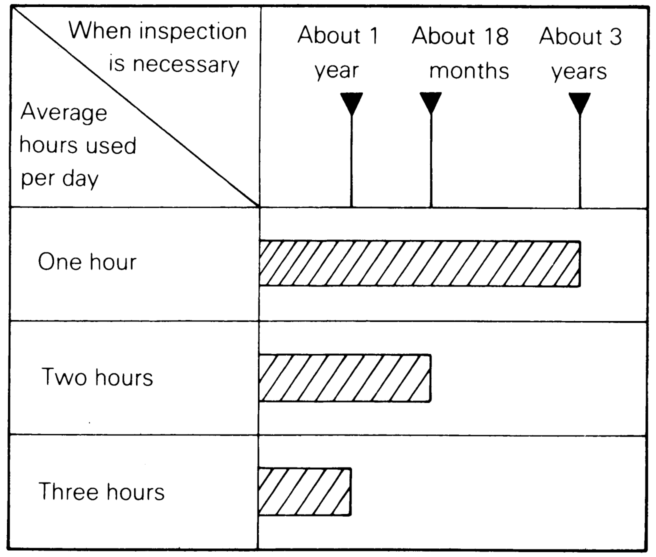
The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise, at tolerances of 1/1000mm, to ensure compatiblity with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, are necessary.

(2) Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used.

But, in general home use, a good picture will be maintained if the inspection and maintenance is made every 1,000hours. The table below shows the relation between time used and inspection period.

Table 1



(3) Check before starting repairs

The following faults can be remedied by cleaning and oiling. Check the needed lubrication and the conditions of cleanliness in the unit.

Check with the customer to find out how often the unit is used, and then determine that the unit is ready for inspection and maintenance. Check the following parts.

Table 2

Phenomenon	Inspection
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, belt or flywheel belt
Vertical jitter, horizontal jitter	Dirt on video head or in tape transport system
Color beats	Dirt on full-erase head
Low volume or sound distorted	Dirt on audio/control head
Fast forward or rewind is not done or rotation is slow	Dirt on belt

(4) Supplies Required for Inspection and Maintenance

(1) Greases Kanto G-31(or equivalent)
(2) Alcohol(or freon)
(3) Cleaning Patches

5) Maintenance Procedure

5-1) Cleaning

(1) Cleaning video head

First use a cleaning tape. If dirt on head is too stubborn to remove by tape, use the cleaning patch. Coat the cleaning patch with alcohol or freon to the point indicated. Touch the cleaning patch to the head tip and gently turn the head(rotating cylinder) right and left.

(Do not move the cleaning patch vertically and make sure that only the buckskin on the cleaning patch comes into contact with the head. Otherwise, the head may be damaged.)

Thoroughly dry the head. Then test tape-running. If alcohol or freon remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, etc, by wiping with a cleaning patch wetted with alcohol or freon.

Note:

① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which move the tape.

② Make sure that during cleaning you do not touch the tape transport system with the tip of a screw driver and no force is applied to the system that would cause deforming.

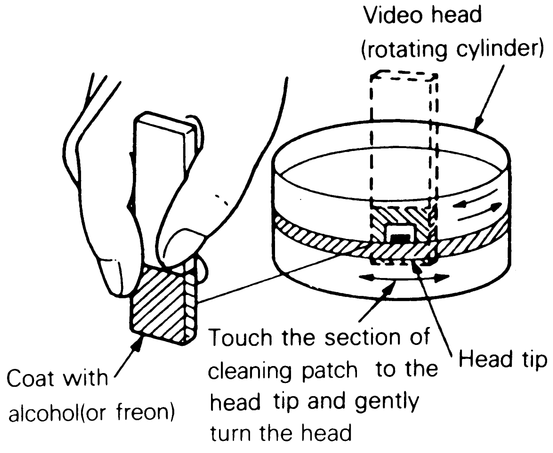

Video head (rotating cylinder)
Coat with alcohol(or freon)
Touch the section of cleaning patch to the head tip and gently turn the head
Head tip

Fig. C-11-1

5-2) Greasing

(1) Greasing guidelines

Apply grease, with a cleaning patch. Do not use excess grease. It may come into contact with the tape transport of drive system. Wipe any excess and clean with cleaning patch wetted in alcohol or freon.

(2) Periodic greasing

Grease specified locations every 5,000hours.

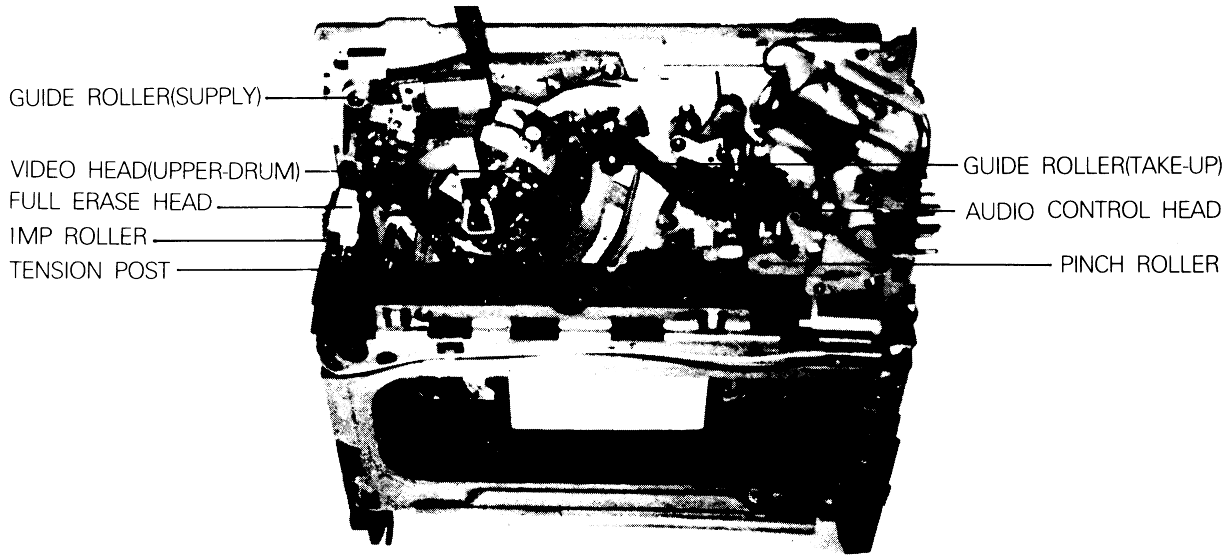


Fig. C-11-2 Tape Transport System

Phenomenon	Inspection	Replacement	
Color beats	Dirt on full-erase head	○	→ ①
Poor S/N no color	Dirt on video head	○	→ ②
Vertical jitter	Dirt on video head Dirt in tape transport system	○	→ ③
Low volume, Sound distorted	Dirt on audio/control head	○	→ ④
Tape does not run. Tape is slack	Dirt on pinch roller	○	→ ⑤

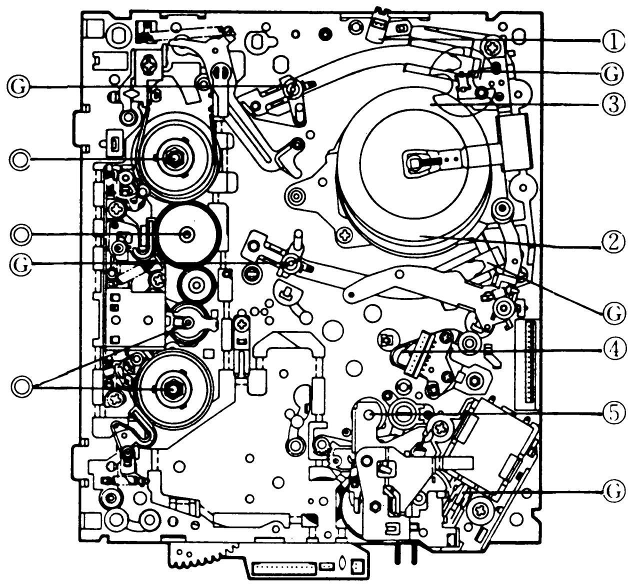


Fig. A-12 Top View of Mechanism

Phenomenon	Inspection Location	Replacement	
Do not fast forward or rewind, or rotation is slow Tape does not run Slack tape	Dirt on reel belt	○	→ ⑥

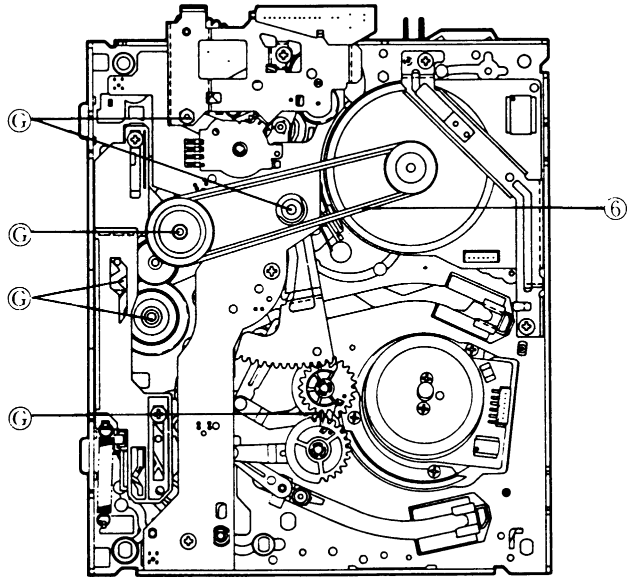


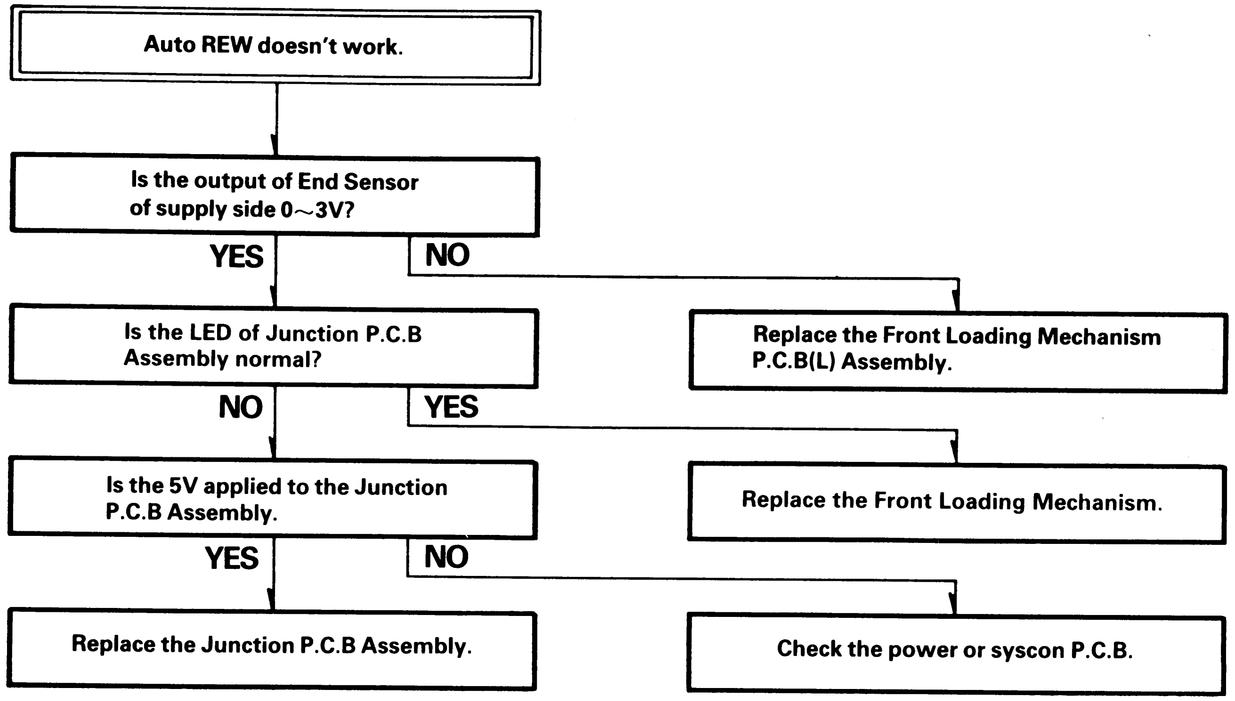
Fig. A-13 Bottom View of Mechanism

Ⓖ:Grease

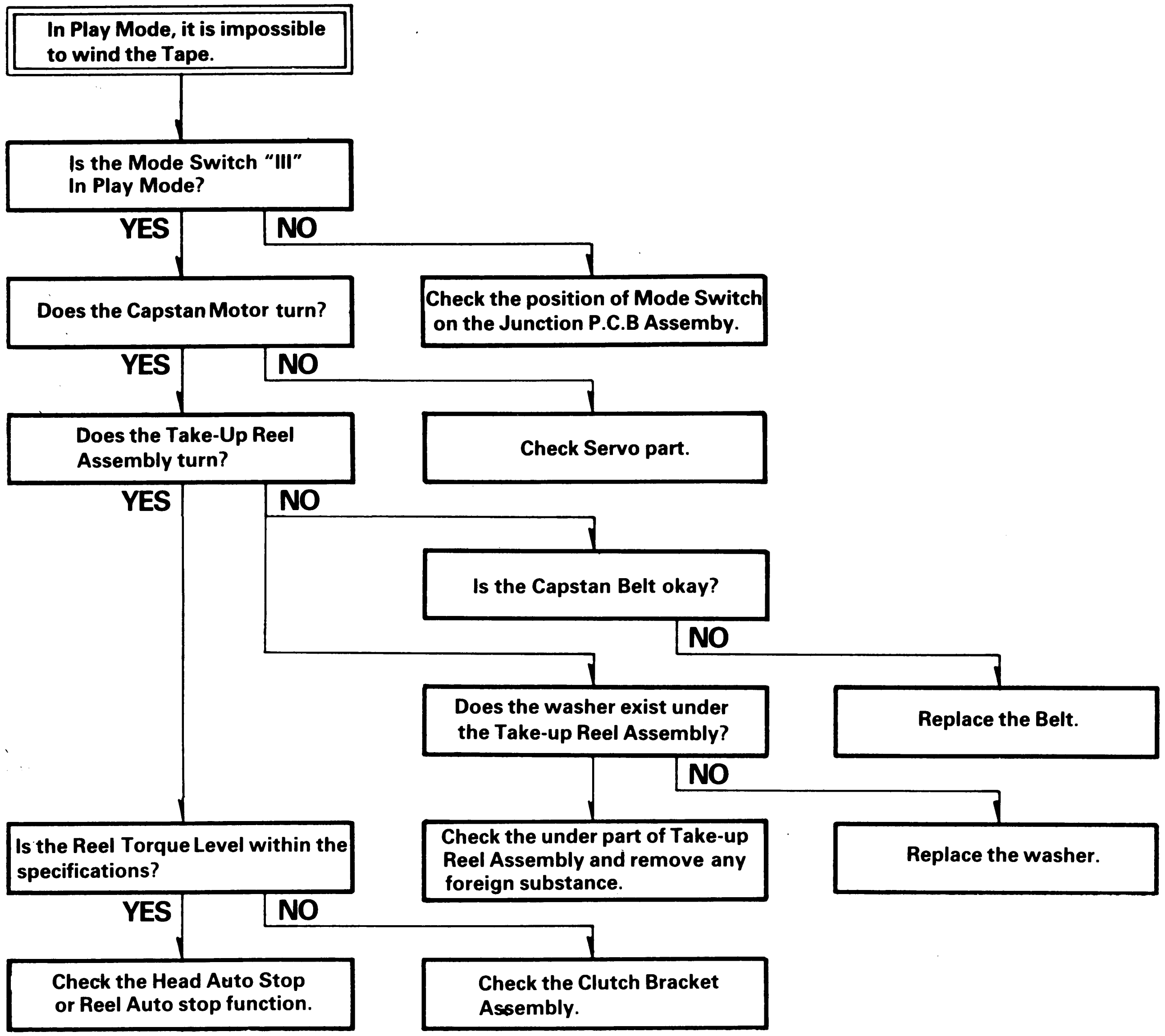
Note: If locations marked with ○ do not operate normally after cleaning, check for wear and replace. See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

MECHANISM TROUBLESHOOTING GUIDE

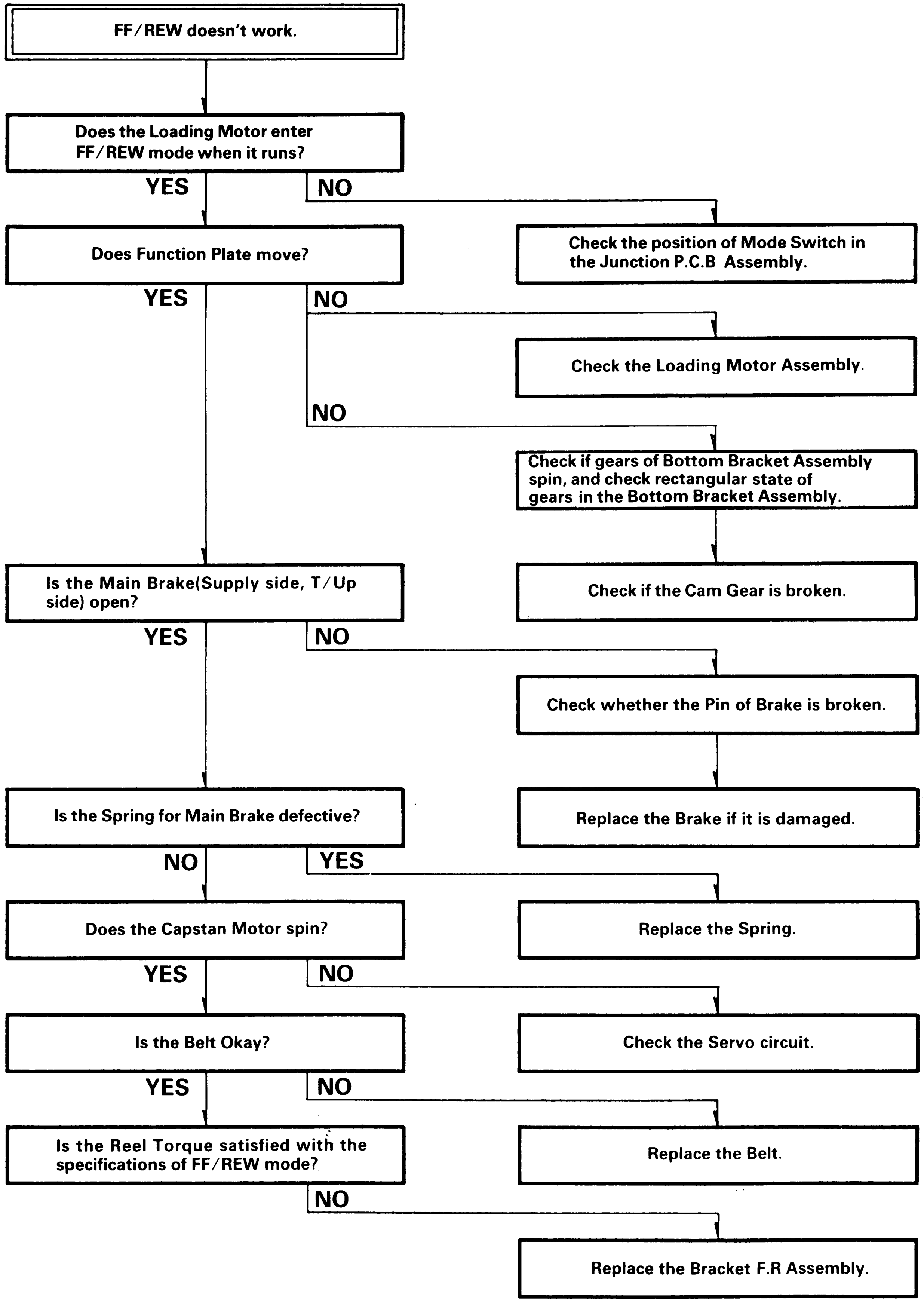
1. Deck Mechanism


Auto REW doesn't work.
Is the output of End Sensor of supply side 0~3V?
YES
NO
Is the LED of Junction P.C.B Assembly normal?
Replace the Front Loading Mechanism P.C.B(L) Assembly.
NO
YES
Is the 5V applied to the Junction P.C.B Assembly.
Replace the Front Loading Mechanism.
YES
NO
Replace the Junction P.C.B Assembly.
Check the power or syscon P.C.B.

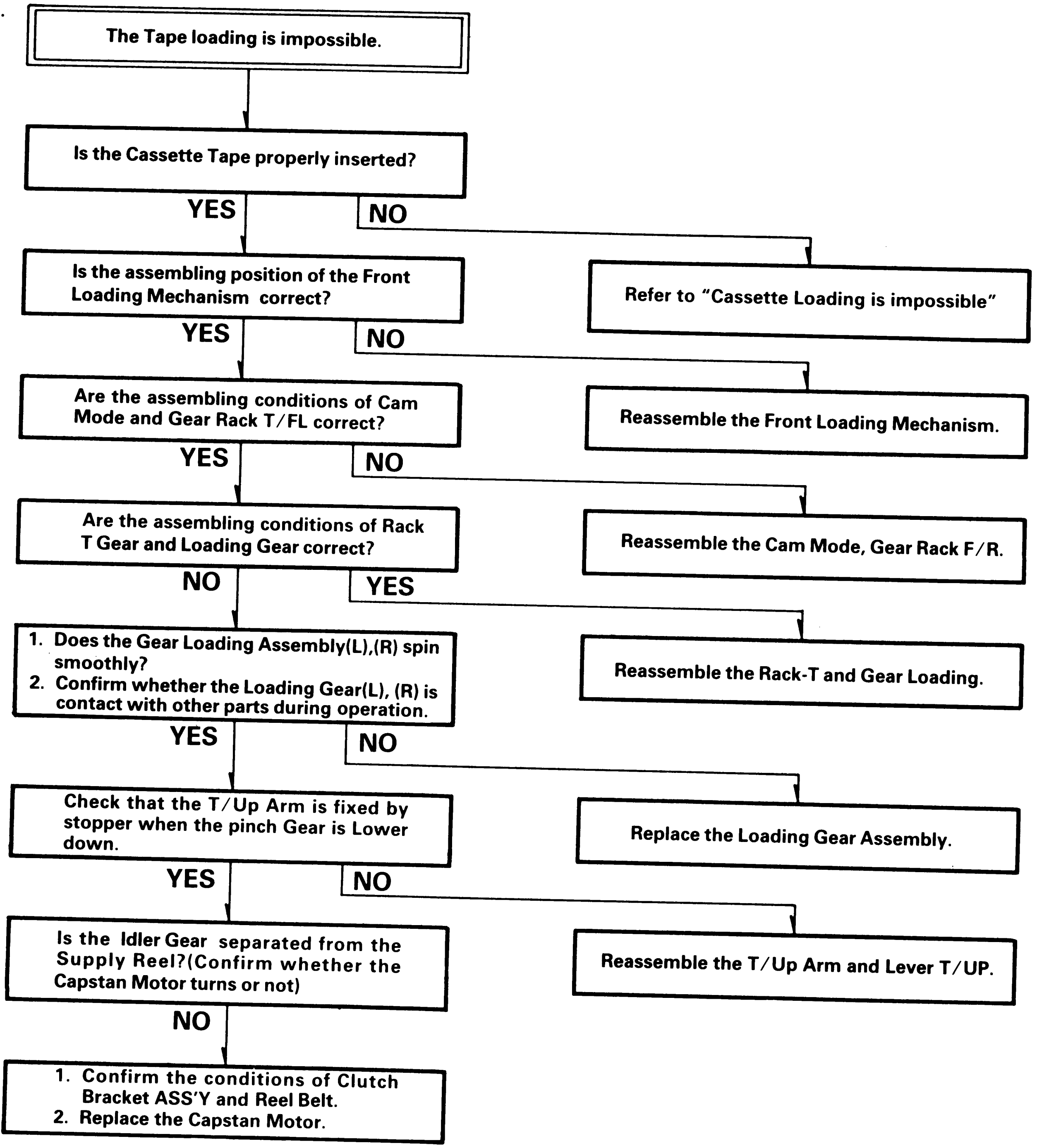
B.


In Play Mode, it is impossible to wind the Tape.
Is the Mode Switch "III" In Play Mode?
YES
NO
Check the position of Mode Switch on the Junction P.C.B Assemby.
Does the Capstan Motor turn?
YES
NO
Check Servo part.
Does the Take-Up Reel Assembly turn?
YES
NO
Is the Capstan Belt okay?
NO
Replace the Belt.
Does the washer exist under the Take-up Reel Assembly?
NO
Replace the washer.
Check the under part of Take-up Reel Assembly and remove any foreign substance.
Is the Reel Torque Level within the specifications?
YES
NO
Check the Head Auto Stop or Reel Auto stop function.
Check the Clutch Bracket Assembly.

C.

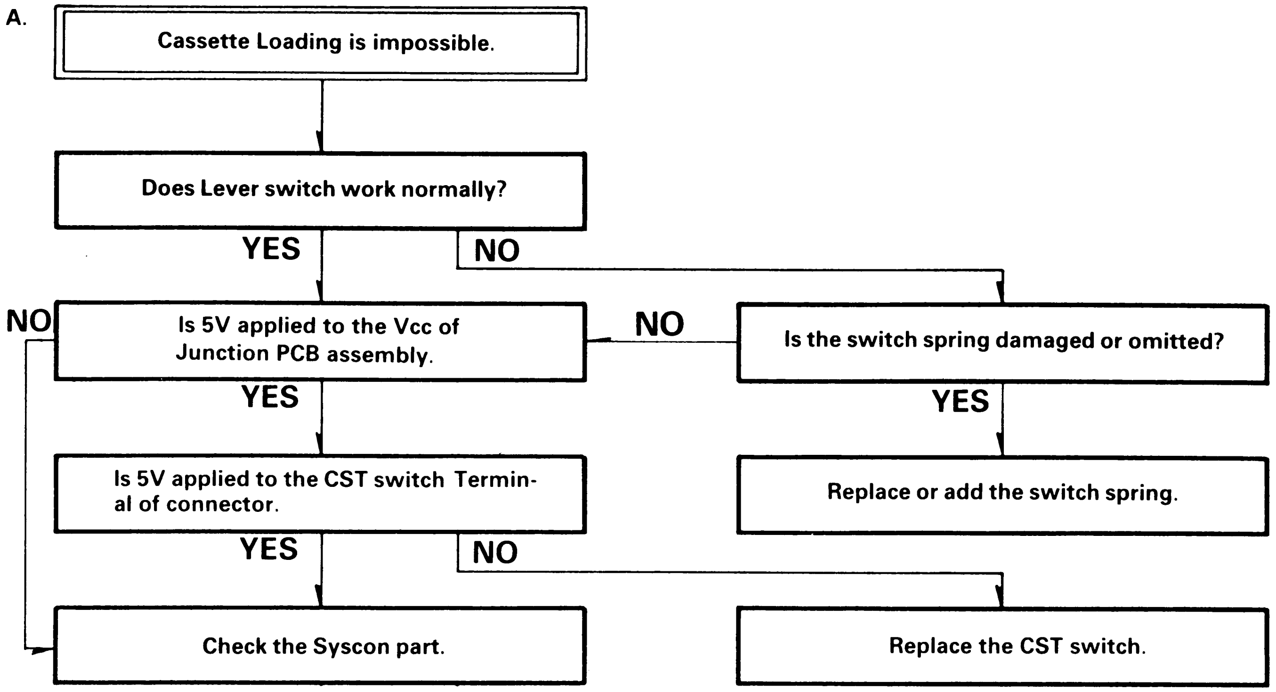

FF/REW doesn't work.
Does the Loading Motor enter FF/REW mode when it runs?
YES
NO
Check the position of Mode Switch in the Junction P.C.B Assembly.
Does Function Plate move?
YES
NO
Check the Loading Motor Assembly.
NO
Check if gears of Bottom Bracket Assembly spin, and check rectangular state of gears in the Bottom Bracket Assembly.
Check if the Cam Gear is broken.
Is the Main Brake(Supply side, T/Up side) open?
YES
NO
Check whether the Pin of Brake is broken.
Replace the Brake if it is damaged.
Is the Spring for Main Brake defective?
NO
YES
Replace the Spring.
Does the Capstan Motor spin?
YES
NO
Check the Servo circuit.
Is the Belt Okay?
YES
NO
Replace the Belt.
Is the Reel Torque satisfied with the specifications of FF/REW mode?
NO
Replace the Bracket F.R Assembly.

D.

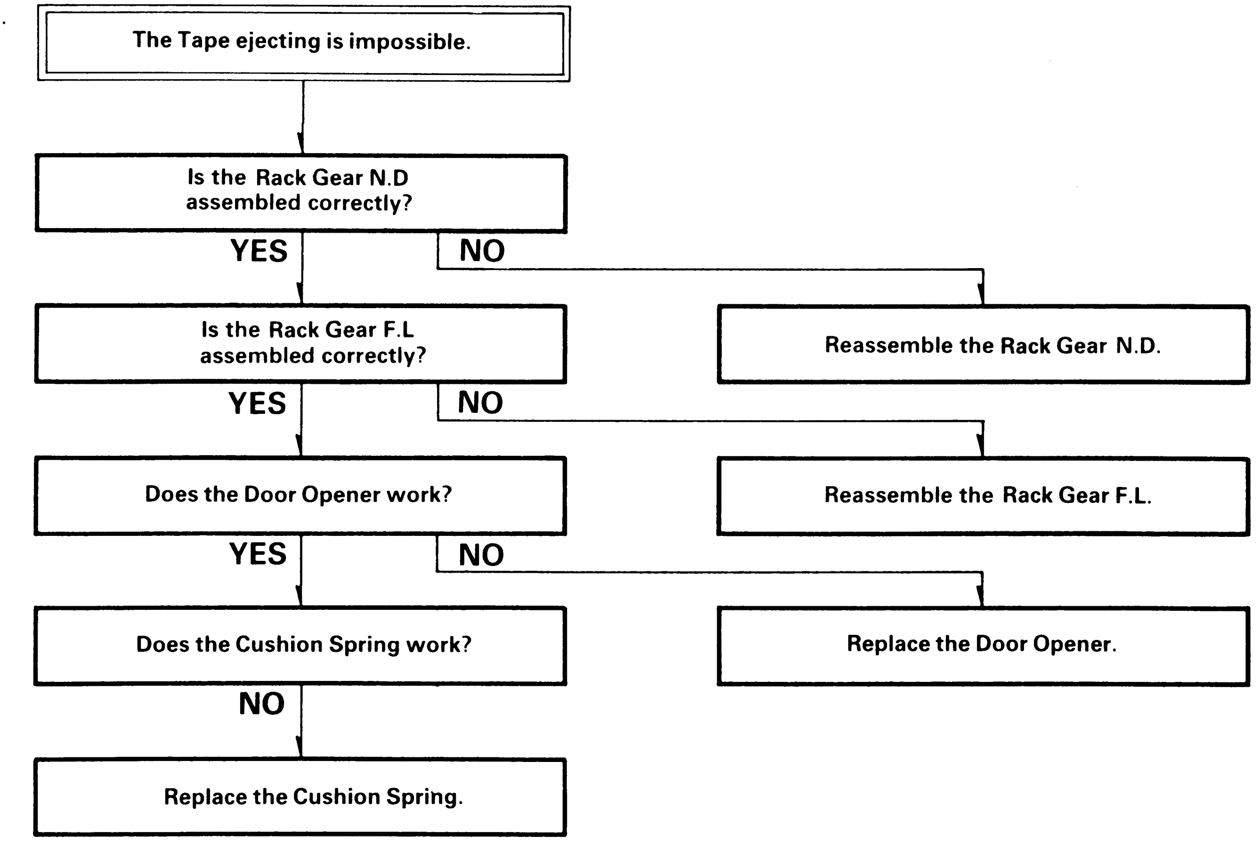

The Tape loading is impossible.
Is the Cassette Tape properly inserted?
YES
NO
Refer to "Cassette Loading is impossible"
Is the assembling position of the Front Loading Mechanism correct?
YES
NO
Reassemble the Front Loading Mechanism.
Are the assembling conditions of Cam Mode and Gear Rack T/FL correct?
YES
NO
Reassemble the Cam Mode, Gear Rack F/R.
Are the assembling conditions of Rack T Gear and Loading Gear correct?
NO
YES
Reassemble the Rack-T and Gear Loading.
1. Does the Gear Loading Assembly(L),(R) spin smoothly?
2. Confirm whether the Loading Gear(L), (R) is contact with other parts during operation.
YES
NO
Replace the Loading Gear Assembly.
Check that the T/Up Arm is fixed by stopper when the pinch Gear is Lower down.
YES
NO
Reassemble the T/Up Arm and Lever T/UP.
Is the Idler Gear separated from the Supply Reel?(Confirm whether the Capstan Motor turns or not)
NO
1. Confirm the conditions of Clutch Bracket ASS'Y and Reel Belt.
2. Replace the Capstan Motor.

2. Front Loading Mechanism

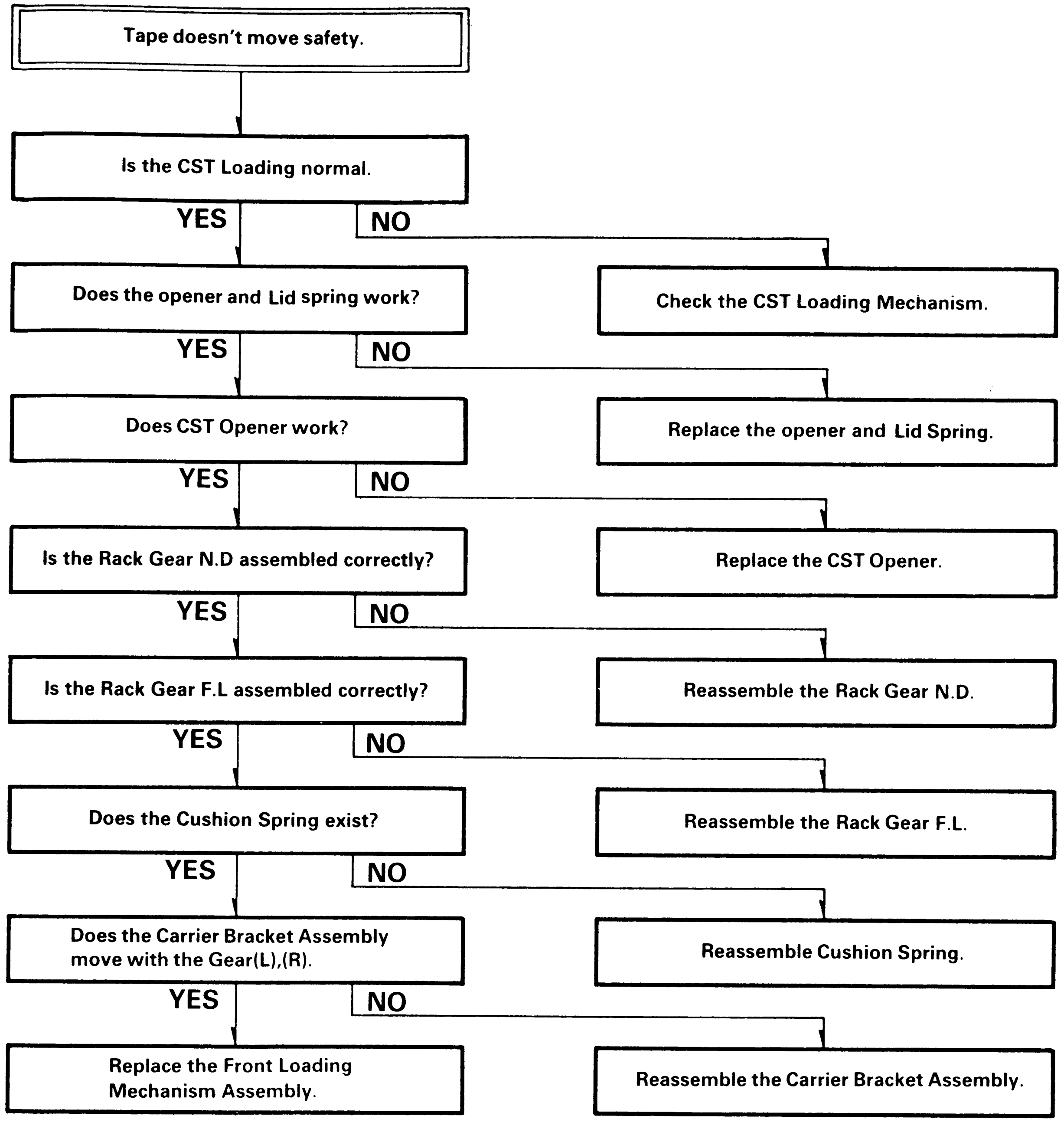
A.


Cassette Loading is impossible.
Does Lever switch work normally?
YES
NO
NO
Is 5V applied to the Vcc of Junction PCB assembly.
NO
Is the switch spring damaged or omitted?
YES
YES
Is 5V applied to the CST switch Terminal of connector.
Replace or add the switch spring.
YES
NO
Check the Syscon part.
Replace the CST switch.

B.


The Tape ejecting is impossible.
Is the Rack Gear N.D assembled correctly?
YES
NO
Is the Rack Gear F.L assembled correctly?
Reassemble the Rack Gear N.D.
YES
NO
Does the Door Opener work?
Reassemble the Rack Gear F.L.
YES
NO
Does the Cushion Spring work?
Replace the Door Opener.
NO
Replace the Cushion Spring.

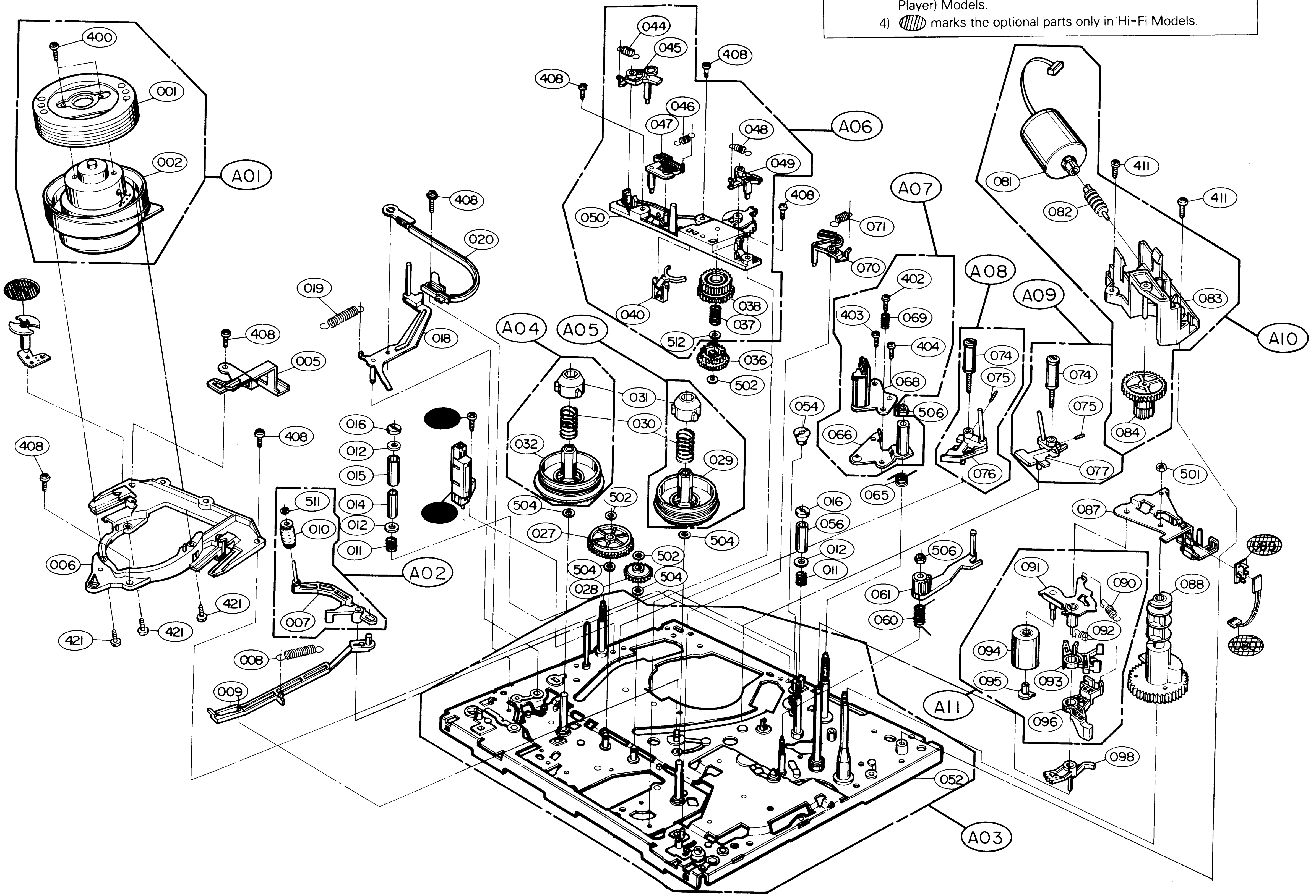
C.


Tape doesn't move safety.
Is the CST Loading normal.
YES
NO
Does the opener and Lid spring work?
Check the CST Loading Mechanism.
YES
NO
Does CST Opener work?
Replace the opener and Lid Spring.
YES
NO
Is the Rack Gear N.D assembled correctly?
Replace the CST Opener.
YES
NO
Is the Rack Gear F.L assembled correctly?
Reassemble the Rack Gear N.D.
YES
NO
Does the Cushion Spring exist?
Reassemble the Rack Gear F.L.
YES
NO
Does the Carrier Bracket Assembly move with the Gear(L),(R).
Reassemble Cushion Spring.
YES
NO
Replace the Front Loading Mechanism Assembly.
Reassemble the Carrier Bracket Assembly.

EXPLODED VIEW

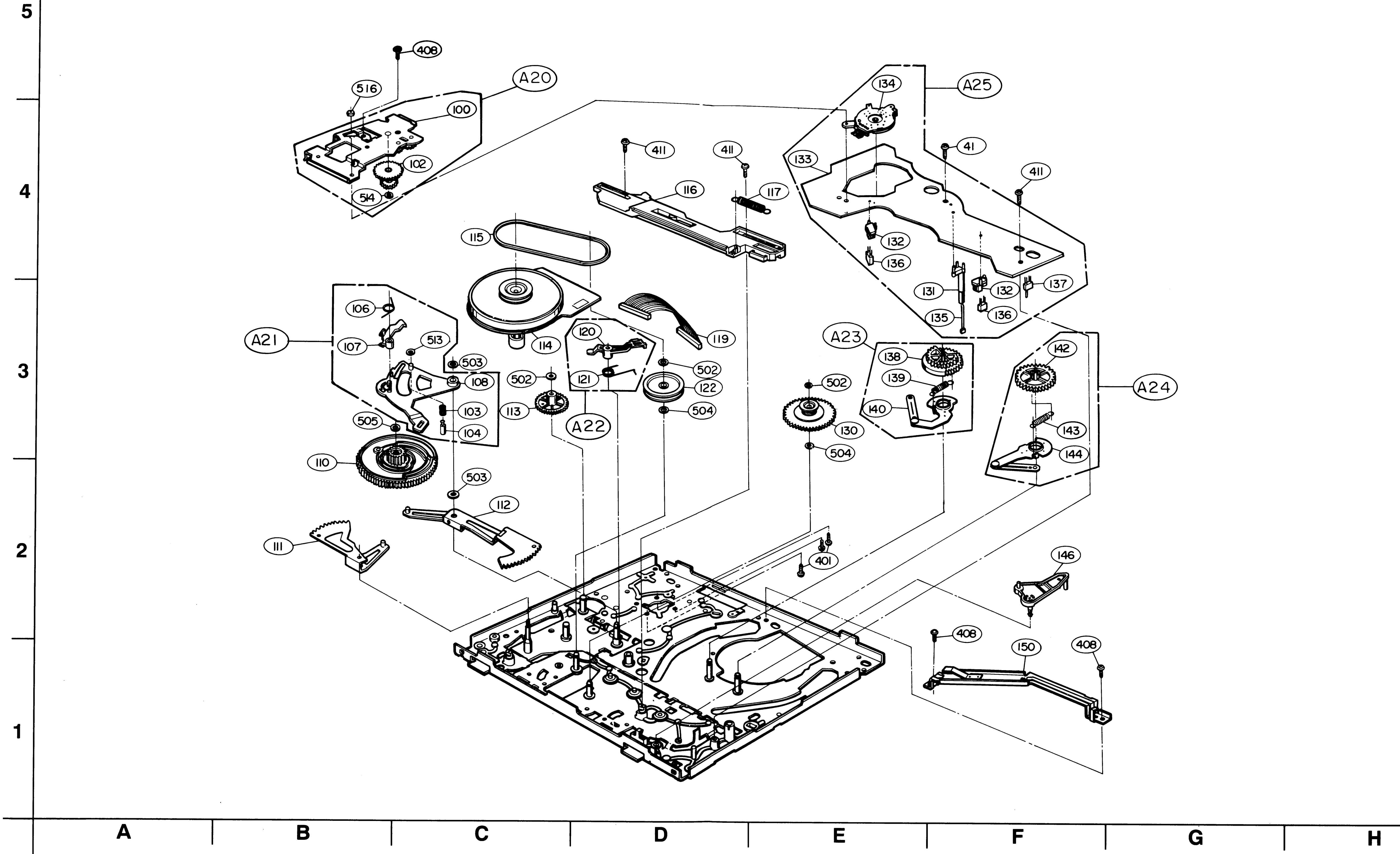
1. Moving Mechanism Section(I)

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
2) ● marks the optional parts only in VCR(Video Cassette Recorders) Models.
3) ▦ marks the optional parts only in VCP(Video Cassette Player) Models.
4) ▥ marks the optional parts only in Hi-Fi Models.


400
001
002
A01
408
020
019
018
005
408
408
006
421
421
421
016
012
015
014
012
011
511
010
007
A02
008
009
044
045
408
408
046
047
048
049
A06
050
408
040
038
037
512
036
502
A04
A05
031
030
032
029
504
502
027
504
502
504
028
504
071
070
A07
402
403
069
404
068
506
066
065
054
016
056
012
011
A08
074
075
076
A09
074
075
077
081
082
411
411
083
A10
084
501
087
506
061
060
091
090
092
094
093
095
096
A11
088
089
080
098
052
A03

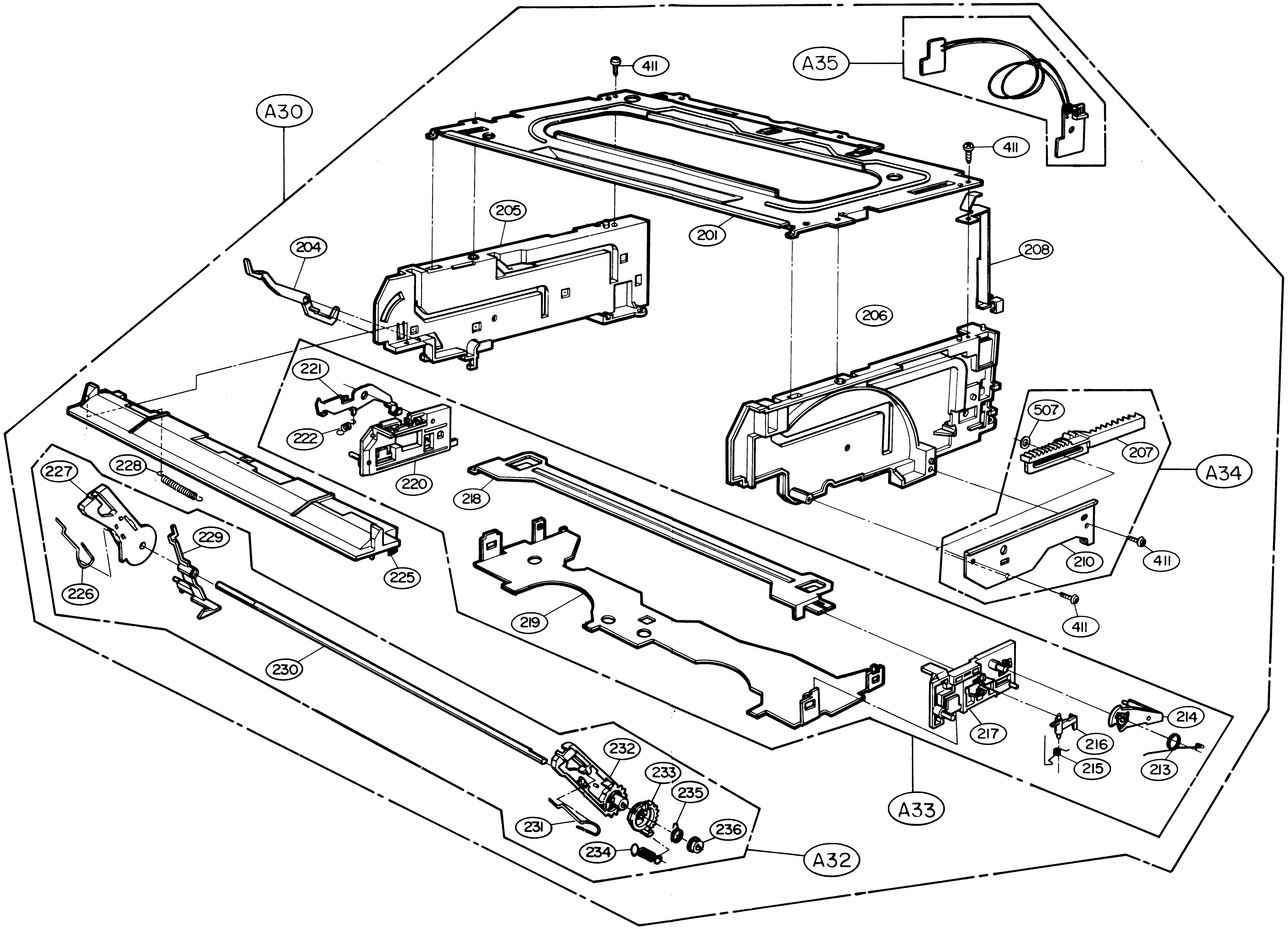
2. Moving Mechanism Section(Ⅱ)

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.


5
4
3
2
1
408
516
A20
100
102
514
411
411
116
117
115
114
119
134
A25
133
41
411
132
136
131
132
137
135
136
A21
106
107
513
503
108
103
104
505
110
120
121
502
113
A22
502
122
504
502
130
504
A23
138
139
140
142
A24
143
144
503
112
111
401
146
408
150
408
A
B
C
D
E
F
G
H

3. Front Loading Mechanism Section

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



A30
A35
411
411
205
201
204
208
206
221
222
220
507
207
A34
218
227
228
225
229
226
210
411
411
219
230
217
214
216
215
213
232
233
235
231
236
234
A33
A32
5
4
3
2
1
A
B
C
D
E
F
G
H

SECTION 5

REPLACEMENT PARTS LIST

CONTENT

REPLACEMENT PARTS LIST 5-3
- Mechanical Section 5-3
- Cabinet & Main frame Section 5-7
- Packing Accessory Section 5-8
- Remote Control Section 5-8
- Electrical Section 5-9

REPLACEMENT PARTS LIST

• Mechanical Section

RUN-DATE : 92.06.01
NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY PARTS SECTION						
		A00	412-103A	DECK	ASSY D17	
		A01	413-222D	DRUM	ASSY (D17-PAL:D4HD/S)	
		A02	386-296A	ARM	ASSY CL	
		A03	311-005A	CHASSIS ASSY'		NSP
	OR	A03	311-005B	CHASSIS ASSY'	D17(WONWOO)	NSP
		A04	456-048A	REEL	ASSY S17	
		A05	456-045A	REEL	ASSY T17	
		A06	321-397A	BRACKET	ASSY F/R	
		A07	225-228A	BASE	ASSY A/C	
	OR	A08	225-248A	BASE	ASSY,P2	
		A08	225-248B	BASE	ASSY P2 (W-W)	
	OR	A09	225-249A	BASE	ASSY,P3	
		A09	225-249B	BASE	ASSY P3 (W-W)	
		A10	414-104A	MOTOR	ASSY LOAD	
		A11	333-209C	LEVER	LEVER ASSY PINCH	
		A20	321-401A	BRACKET	ASSY BOTTOM	
		A21	333-208A	LEVER	ASSY RAT	
		A22	338-078A	BRAKE	ASSY CAP	
		A23	386-218A	ARM	ASSY LOAD(R)	
		A24	386-219A	ARM	ASSY LOAD(L)	
		A25	511-997A	PWB ASSY	D-17	
		A30	219-017D	HOUSING	ASSY D-17	
		A32	435-257A	GEAR	ASSY DRIVE	
		A33	321-406A	BRACKET	ASSY CARRIER	
		A34	321-441A	BRACKET	ASSY SIDE	
		A35	515-106A	PWB ASSY	SENSOR	
PARTS SECTION						
		001	413-165D	DRUM	ASSY UPPER(D17-PAL:D4HD/S)	
		002	413-220A	DRUM	ASSY LOWER (D17-4CH)	
		005	225-231A	BASE	ASSY D-BRUSH	
	OR	006	225-220A	BASE	DRUM	NSP
		006	225-220B	BASE	DRUM (W-W)	NSP
		007	386-297A	ARM	SUB ASSY CU	
		008	442-460B	SPRING	CU	
		009	442-459A	SPRING	CL	
		010	386-295A	ARM	CL	
		011	442-161A	SPRING	P14	
		012	384-071A	GUIDE	17	
	OR	013	523-082A	HEAD	FE ,HVFMF0010AK,D-17	
		013	523-082B	HEAD	FE,HVFHF0010AK	
		014	378-017A	SLEEVE	P1	
		015	434-178A	ROLLER	P1	
	OR	015	434-178B	ROLLER	P1	
		016	389-003B	ADJUST	P(4)	
		018	386-205A	ARM	ASSY TENSION	
		019	442-331C	SPRING	TENSION	
		020	328-052B	BAND	ASSY TENSION	
		027	435-243A	GEAR	IDLE(A)	

NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		028	435-244A	GEAR	IDLE(B)	
		029	456-040A	REEL	T17	NSP
		030	442-341A	SPRING	REEL	NSP
		030	442-341A	SPRING	REEL	NSP
		031	276-068A	CAP	REEL	NSP
		031	276-063A	CAP	REEL	NSP
		032	456-039A	REEL	S17	NSP
		036	435-240A	GEAR	F/R	
		037	442-336A	SPRING	UP/D	NSP
		038	435-239A	GEAR	UP/D	NSP
		040	333-201A	LEVER	ASSY F/R	NSP
		044	442-338B	SPRING	SSB	NSP
		045	338-081A	BRAKE	S-SOFT	NSP
		046	442-337A	SPRING	SMB	NSP
		047	338-080A	BRAKE	ASSY S-MAIN	NSP
		048	442-339D	SPRING	TSB	NSP
		049	338-083A	BRAKE	ASSY T-SOFT	NSP
		050	321-396A	BRACKET	SUB ASSY F/R	NSP
		052	313-022A	CHASSIS	OUTSERT	NSP
		054	389-013A	ADJUST	X-ASSY	
		056	378-018A	SLEEVE	P4	
		060	442-343A	SPRING	T/UP	
	CR	061	386-279A	ARM	ASSY T/UP	
		061	386-279B	ARM	ASSY T/UP	
		065	442-332A	SPRING	A/C	
		066	225-219A	BASE	SUB ASSY A/C	NSP
		068	523-089A	HEAD	SUB ASSY A/C	
		069	442-362A	SPRING	AZIMUTH	
		070	338-085A	BRAKE	ASSY T-MAIN	
		071	442-344A	SPRING	TMB	
		074	434-173A	ROLLER	ASSY GUIDE	
		074	434-173A	ROLLER	ASSY GUIDE	
		075	353-054B	SCREW	MINIATURE	
		075	353-054B	SCREW	MINIATURE	
		076	225-226B	BASE	SUB ASSY SLALT (L.W-W)	
		077	225-225B	BASE	SUB ASSY SLALT (R.W-W)	
		081	414-105A	MOTOR	SUB ASSY.L	
		082	437-009A	WORM	ASSY	
		083	321-410A	BRACKET	SUB ASSY L/M	
		084	433-023A	WHEEL	WORM	
		087	321-470A	BRACKET	ASSY DEW	
		088	435-245A	GEAR	PINCH	
	OR	088	435-245B	GEAR	PINCH	
		090	442-347A	SPRING	PINCH	NSP
		091	386-210A	ARM	ASSY PINCH	NSP
		092	442-346A	SPRING	STOPPER	NSP
		093	334-050B	STOPPER	PINCH	NSP
	CR	094	434-181A	ROLLER	ASSY PINCH	
		094	434-181B	ROLLER	ASSY PINCH	
		095	276-089A	CAP	PINCH	NSP
		096	333-203A	LEVER	PINCH	NSP
		098	333-206A	LEVER	T/UP	
		100	321-463A	BRACKET	SUB ASSY B	NSP
		102	435-249A	GEAR	RAT1	NSP

NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		103	442-356A	SPRING	F-LEVER	NSP
		104	356-208A	PIN	F-LEVER	NSP
		106	442-345A	SPRING	RAT	NSP
		107	333-202A	LEVER	RAT	NSP
		108	333-207A	LEVER	F17	NSP
		110	374-005A	CAM	D17	
		111	435-318A	GEAR	ASSY RACK F/L	
		112	435-291A	GEAR	ASSY RACK T	
		113	435-246A	GEAR	PC	
		114	414-115A	MOTOR	CAPSTAN SVC-102A.D-17	
	OR	114	414-121A	MOTOR	CAPSTAN GVC-017B	
		115	452-047A	BELT	CENTER	
		116	256-734A	PLATE	F17	
		117	442-342B	SPRING	FP	
		119	672-400G	CONNECTOR ASSY	6P 85 (8283-8283) D-17	
		120	338-089A	BRAKE	SUB ASSY CAP	
		121	442-333A	SPRING	CAPSTAN	
		122	432-038A	PULLEY	GEAR	
		130	337-005A	CLUTCH	ASSY	
		131	324-643A	HOLDER	LED	
		132	324-642A	HOLDER	R/S	
		133	513-494B	PWB	JUNCTION D-17	NSP
		134	556-133A	SWITCH	MODE	
	OR	135	0DL451000AA	DIODE LED	IR SENSOR GL451(LONG) SHARP	
		135	0DL550000AB	DIODE LED	IR SENSOR EL-55L(LONG) KOC	
		136	657-102K	SENSOR	SG-105(REEL) KOC	
		137	556-131A	SWITCH	ESE-105SV1	
		138	435-234A	GEAR	LOAD(R)	
		139	442-330A	SPRING	LOADING	
		140	386-274A	ARM	SUB ASSY (R)	
		142	435-235A	GEAR	LOAD(L)	
		143	442-330B	SPRING	LOADING	
		144	386-273A	ARM	SUB ASSY (L)	
		146	333-218A	LEVER	ASSY A-TEN	
		150	321-527A	BRACKET	ASSY C-GUIDE	
		201	256-934B	PLATE	TOP	
		204	465-026A	OPENER	DOOR	
		205	321-517B	BRACKET	LEFT (D17)	
		206	321-518A	BRACKET	RIGHT (D17)	
		207	435-278A	GEAR	RACK N/D	
		208	256-910A	PLATE	GND TOP	
		210	321-440A	BRACKET	SIDE	
		213	442-351A	SPRING	OC	NSP
		214	465-028A	OPENER	CST	NSP
		215	442-357A	SPRING	RID	NSP
		216	465-027A	OPENER	RID	NSP
		217	324-647A	HOLDER	R	NSP
		218	321-407A	BRACKET	SUPPORT	NSP
		219	321-405A	BRACKET	CARRIER	NSP
		220	324-646A	HOLDER	L	NSP
		221	333-210A	LEVER	DT	NSP
		222	442-358B	SPRING	DT	NSP
		225	384-074A	GUIDE	CST	
		226	442-352A	SPRING	L	NSP

NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		227	435-254A	GEAR	L	NSP
		228	442-350A	SPRING	S/W	
		229	333-204A	LEVER	S/W	NSP
		230	423-368A	SHAFT	D	NSP
		231	442-353A	SPRING	R	NSP
		232	435-255A	GEAR	R	NSP
		233	435-256A	GEAR	C	NSP
		234	442-359C	SPRING	CUSHION (D17F/L)	NSP
		235	442-354A	SPRING	CC	NSP
		236	276-086A	CAP	DRIVE	NSP
				SCREWS		
		400	1MDC0302418	PAN HEAD MACHINE SCREW P/WASH+	D 3.0 L 8.0 MSWR3/FZY	
		401	1MPK0261418	PAN HEAD MACHINE SCREW +,-	D 2.6 L 4.0 MSWR3/FZY	
		402	353-021D	SCREW	SPECIAL	
		403	1MPK0302418	PAN HEAD MACHINE SCREW +,-	D 3.0 L 8.0 MSWR3/FZY	
		404	353-048C	SCREW	CONE POINT 3X10	
		408	1MBC0302418	BINDING HEAD MACHINE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
		411	353-046B	SCREW	SPECIAL (3X8 FZMY)	
		412	1MBC0302818	BINDING HEAD MACHINE SCREW +	D 3.0 L 12 MSWR3/FZY	
		421	1MPC0302618	PAN HEAD MACHINE SCREW +	D3.0 L10.0,MSWR3/FZY	
		425	1SRF0302418	BRAIZER HD TAP TITE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
		426	1MPC0302018	PAN HEAD MACHINE SCREW +	D 3.0 L 6.0 MSWR3/FZY	
				NUT, WASHER		
		502	354-020D	WASHER	STOPPER	
		503	354-020E	WASHER	STOPPER	
		504	354-001B	WASHER	P.S D3.1XD6X0.5T	
		505	354-080E	WASHER	STOPPER	
		506	352-025A	NUT	NYLON M3	
		507	354-020J	WASHER	STOPPER(2.6X4.8X0.5)	
		512	354-080E	WASHER	STOPPER	NSP
		513	354-080A	WASHER	STOPPER	NSP
		514	354-080B	WASHER	STOPPER	NSP
		516	334-058A	STOPPER	A/C TERMINAL	

• Cabinet & Mainframe Section

RUN-DATE : 92.06.01

NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
				ASSEMBLY PARTS SECTION		
		A43	258-453M	PANEL	ASSY FRONT	
		A44	232-184D	BOARD ASSY	POWER 220V/50HZ	
		A45	232-187A	BOARD ASSY	PRE-AMP 4HEAD	
		A46	232-185W	BOARD ASSY	MAIN	
				PARTS SECTION		
		250	217-323B	CASE	TOP (SGM-6216)	
		260	315-222A	FRAME	MAIN	NSP
		261	327-013A	CLAMP	CORD	NSP
		265	477-034B	RUBBER	BUMPON	NSP
		268	256-887A	PLATE	FRAME GND	NSP
		269	321-526A	BRACKET	HOUSING	
		275	324-697A	HOLDER	DIGITRON	
		276	273-145A	KNOB	SLIDE	
		280	258-405C	PANEL	FRONT (6216)	NSP
		281	324-698A	HOLDER	LED	
		282	221-516L	COVER	DOOR	NSP
		283	226-041G	DOOR	CST	
		284	442-370A	SPRING	DOOR	
		285	236-281A	WINDOW	DECORATION	NSP
		286	321-480A	BRACKET	DOOR	
		287	256-831A	PLATE	FUNCTION (A)	NSP
		288	256-832A	PLATE	FUNCTION (B)	NSP
		289	435-233B	GEAR	DAMPER	
		290	275-406A	BUTTON	PROGRAM	NSP
		291	256-830A	PLATE	DOOR (AL)	NSP
		292	524-007K	MAGNET	ASSY	NSP
		293	273-146A	KNOB	ROTARY	
		294	275-405A	BUTTON	POWER	NSP
		295	236-282A	WINDOW	LED	NSP
		296	275-416A	BUTTON	TIMER (B)	NSP
		297	275-407A	BUTTON	TIMER (A)	NSP
		298	275-404A	BUTTON	FUNCTION	NSP
	*	300	681-035A	CORD	POWER PAL W/STOPPER	
		301	321-462A	BRACKET	TR	
		303	256-886A	PLATE	HEAT SINK	
		304	221-407A	COVER	FUSE	
		310	217-313A	CASE	PRE-AMP	NSP
		311	221-638A	COVER	PRE-AMP "B"	NSP
		312	221-694A	COVER	PRE-AMP "A"	NSP
		320	258-406A	PANEL	DISTRIBUTOR	
		321	256-515N	PLATE	DISTRIBUTOR	NSP
		324	573-011A	SOCKET	SR-21A1-3	
		330	221-633A	COVER	BOTTOM	
				SCREWS		
		451	353-046C	SCREW	(3X10 FZMY)	
		451	353-046C	SCREW	(3X10 FZMY)	
		452	353-051A	SCREW	SPECIAL	
		457	353-051B	SCREW	SPECIAL	
		461	353-046B	SCREW	SPECIAL (3X8 FZMY)	
		462	353-136A	SCREW	SPECIAL(FBK)	

• Packing Accessory Section

RUN-DATE : 92.06.01
NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		801	480-381C	INSTRUCTION ASSY	R-C400W 5ET1	
		802	288-303D	BOX CARTON	R-C400W 5ET1	
		803	283-159A	PACKING	R-C40P VD1	
		804	291-002B	SHEET CUSHION		NSP
		808	534-002C	BATTERY	1.5V AAM UM-3 LOL 1PAIR	
		810	861-505B	CABLE SET ASSY	RF-CABLE.ASSY.PAL	

• Remote Control Section

RUN-DATE : 92.06.01
NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		900	597-059F	REMOTE CONTROL	ASSY	
		901	256-941F	PLATE	TOP R/C	NSP
		902	221-626A	COVER	TOP R/C	NSP
		903	515-310B	PWB ASSY	R/C(1Y/8P,40POS.W/O VPS,SP/LP	NSP
		904	556-161E	SWITCH	RUBBER	NSP
		905	236-328A	WINDOW	LCD	NSP
		906	236-327A	WINDOW	FILTER	NSP
		907	221-627A	COVER	BOTTOM R/C	NSP
		908	221-623A	COVER	BATTERY R/C	
		909	442-442A	SPRING	BAT.-C	NSP
		910	442-441A	SPRING	BAT.-B	NSP
		911	442-440A	SPRING	BAT.-A	NSP

• Electrical Section

RUN-DATE : 92.06.01

CAUTION: The * maks in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the SAFETY PRECAUTIONS and SERVICING PRECAUTIONS in this manual. Do not degrade the safety of the unit throgh improper servicing.

Tolerance

Symbol	C	J	K	M	N	Z	P	A
%	±2	±5	±10	±20	±30	±80 -20	+100 -10	+100 -10

CC, CJ, CK : Capacitor,Ceramic
DE : Capacitor, Electrolytic
CQ : Capacitor, Polyester

CAPACITOR

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		C001	0CE4764F638	47M SRA/SS 16V M FM5 TP(5)
		C002	0CN1030F678	0.01M 16V M Y TA26
		C003	0CN1030F678	0.01M 16V M Y TA26
		C004	0CN1030F678	0.01M 16V M Y TA26
		C005	0CC0300K015	3P 50V C NPO TS
		C006	0CN1030F678	0.01M 16V M Y TA26
		C007	0CX1500K408	15P 50V J SL TA26
		C008	0CN1030F678	0.01M 16V M Y TA26
		C009	0CN3310K518	330P 50V K B TA26
		C010	0CN3310K518	330P 50V K B TA26
		C011	0CN1030F678	0.01M 16V M Y TA26
		C012	0CN1030F678	0.01M 16V M Y TA26
		C013	0CE1044K638	0.1M SRA 50V M FM5 TP(5)
		C014	0CN1030F678	0.01M 16V M Y TA26
		C015	0CX3900K408	39P 50V J SL TA26
		C016	0CE4764F638	47M SRA/SS 16V M FM5 TP(5)
		C017	0CN1030F678	0.01M 16V M Y TA26
		C019	0CX3300K408	33P 50V J SL TA26
		C020	0CN2230H948	0.022M 25V Z F TA26
		C021	0CX3900K408	39P 50V J SL TA26
		C022	0CX2200K408	22P 50V J SL TP26
		C023	0CE4764F638	47M SRA/SS 16V M FM5 TP(5)
		C024	0CN1030F678	0.01M 16V M Y TA26
		C025	0CN2230H948	0.022M 25V Z F TA26
		C026	0CE2244K638	0.22M SRA 50V M FM5 TP(5)
		C027	0CC0500K015	5P 50V C NPO TR
		C028	0CX1000K408	10P 50V J SL TA26
		C029	0CE2244K638	0.22M SRA 50V M FM5 TP(5)
		C030	0CN2230H948	0.022M 25V Z F TA26
		C031	0CN2230H948	0.022M 25V Z F TA26
		C032	0CE2244K638	0.22M SRA 50V M FM5 TP(5)
		C033	0CX3300K408	33P 50V J SL TA26
		C034	0CX1500K408	15P 50V J SL TA26
		C036	0CE2244K638	0.22M SRA 50V M FM5 TP(5)
		C037	0CN2230H948	0.022M 25V Z F TA26
		C038	0CN1030F678	0.01M 16V M Y TA26
		C039	0CN1030F678	0.01M 16V M Y TA26
		C101	0CK2230K940	0.022M 50V Z F S
		C102	0CK2230K940	0.022M 50V Z F S
*		C103	624-025A	4700UF-35V(23X37)
		C104	0CE4786F610	4700M SMS 16V M FL
		C105	0CE4766F630	47M SMS 16V M FM5

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		C106	0CE4766F630	47M SMS 16V M FM5
		C107	0CK2230K940	0.022M 50V Z F S
		C108	0CE4766F630	47M SMS 16V M FM5
		C109	0CE4766F630	47M SMS 16V M FM5
		C110	0CK2230K940	0.022M 50V Z F S
		C112	0CE4766F630	47M SMS 16V M FM5
		C113	0CE4766F630	47M SMS 16V M FM5
		C116	0CE4766F630	47M SMS 16V M FM5
		C117	0CE4766F630	47M SMS 16V M FM5
		C118	0CE4766F630	47M SMS 16V M FM5
		C119	0CK2230K940	0.022M 50V Z F S
		C120	0CK2230K940	0.022M 50V Z F S
		C121	0CE1076L610	100M SMS 63V M FM5
		C122	0CK2230K940	0.022M 50V Z F S
		C123	0CK2230K940	0.022M 50V Z F S
		C124	0CE1076L610	100M SMS 63V M FM5
*		C125	624-018A	LINE DE7100 FZ 472P VA1-KC
*		C126	624-018A	LINE DE7100 FZ 472P VA1-KC
		C131	0CE4766K630	47M SMS 50V M FM5
		C132	0CE4766K630	47M SMS 50V M FM5
		C201	0CQ4731N409	0.047U 100V J POLY TP
		C202	0CQ4731N409	0.047U 100V J POLY TP
		C203	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C204	0CE1066H638	10M SMS 25V M FM5 TP
		C205	0CE1066H638	10M SMS 25V M FM5 TP
		C206	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C207	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C208	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C209	0CQ1221N409	0.0012U 100V J POLY TP
		C210	0CQ1021N409	0.001U 100V J POLY TP
		C211	0CE4766H638	47M SMS 25V M FM5 TP5
		C212	0CE1066H638	10M SMS 25V M FM5 TP
		C213	0CN3310K518	330P 50V K B TA26
		C214	0CN1510K518	150P 50V K B TA26
		C215	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C216	0CN1010K518	100P 50V K B TA26
		C217	0CN1010K518	100P 50V K B TA26
		C218	0CE1076F638	100M SMS 16V M FM5 TP(5)
		C219	0CK4730K945	0.047U 50V Z F TS
		C220	0CE2276F638	220U SMS 16V M FM5 TP(5)
		C221	0CK4730K945	0.047U 50V Z F TS
		C222	0CE2276F638	220U SMS 16V M FM5 TP(5)
		C223	0CK4730K945	0.047U 50V Z F TS
		C224	0CX2700K408	27P 50V J SL TA26
		C225	0CN1040K948	0.1M 50V Z F TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		C227	0CQ2231N409	0.022U 100V J POLY TP
		C228	0CQ2231N409	0.022U 100V J POLY TP
		C229	0CE1076F638	100M SMS 16V M FM5 TP(5)
		C230	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C231	0CE1046K638	0.1M SMS 50V M FM5 TP(5)
		C232	0CQ1021N409	0.001U 100V J POLY TP
		C233	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C234	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C235	0CE4746K638	0.47M SMS 50V M TP(5)
		C236	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C237	0CK4730K945	0.047U 50V Z F TS
		C238	0CQ4731N409	0.047U 100V J POLY TP
		C239	0CN1030F678	0.01M 16V M Y TA26
		C240	0CN1030F678	0.01M 16V M Y TA26
		C241	0CQ2221N409	0.0022U 100V J POLY TP
		C242	0CK4730K945	0.047U 50V Z F TS
		C301	0CE4766F638	47M SMS 16V M FM5 TP5
		C302	0CX5600K408	56P 50V J SL TA26
		C303	0CX6800K408	68P 50V J SL TA26
		C304	0CN1030F678	0.01M 16V M Y TA26
		C305	0CN1030F678	0.01M 16V M Y TA26
		C306	0CE3356K638	3.3M SMS 50V M FM5 TP(5)
		C307	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C308	0CN2230H948	0.022M 25V Z F TA26
		C309	0CE4766F638	47M SMS 16V M FM5 TP5
		C312	0CE4766F638	47M SMS 16V M FM5 TP5
		C313	0CN1030F678	0.01M 16V M Y TA26
		C314	0CN1030F678	0.01M 16V M Y TA26
		C315	0CE4766F638	47M SMS 16V M FM5 TP5
		C316	0CN1030F678	0.01M 16V M Y TA26
		C317	0CN1030F678	0.01M 16V M Y TA26
		C318	0CE4766F638	47M SMS 16V M FM5 TP5
		C319	0CX1500K408	15P 50V J SL TA26
		C320	0CE4766F638	47M SMS 16V M FM5 TP5
		C321	0CX2400K408	24P 50V J SL TA26
		C322	0CE4766F638	47M SMS 16V M FM5 TP5
		C323	0CN1030F678	0.01M 16V M Y TA26
		C324	0CE1076F638	100M SMS 16V M FM5 TP(5)
		C325	0CE3346K638	0.33M SMS 50V M FM5 TP(5)
		C326	0CE2266H638	22M SMS 25V M FM5 TP5
		C327	0CE1066H638	10M SMS 25V M FM5 TP
		C328	0CN1030F678	0.01M 16V M Y TA26
		C329	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C330	0CN1030F678	0.01M 16V M Y TA26
		C331	0CE4766F638	47M SMS 16V M FM5 TP5
		C332	0CX2400K408	24P 50V J SL TA26
		C333	0CN8200K518	82PF 50V K B TA26
		C334	0CX2400K408	24P 50V J SL TA26
		C335	0CE3366F638	33M SMS 16V M FM5 TP(5)
		C336	0CN1030F678	0.01M 16V M Y TA26
		C337	0CN1030F678	0.01M 16V M Y TA26
		C338	0CX6800K408	68P 50V J SL TA26
		C339	0CE4766F638	47M SMS 16V M FM5 TP5
		C340	0CN1030F678	0.01M 16V M Y TA26
		C341	0CE4766F638	47M SMS 16V M FM5 TP5
		C342	0CN1030F678	0.01M 16V M Y TA26
		C343	0CN1030F678	0.01M 16V M Y TA26
		C345	0CX6800K408	68P 50V J SL TA26
		C346	0CE1066H638	10M SMS 25V M FM5 TP
		C347	0CE4774F638	470M SRA 16V M FM5 TP(5)
		C348	0CE4774F638	470M SRA 16V M FM5 TP(5)
		C350	0CE4766F638	47M SMS 16V M FM5 TP5
		C351	0CE4766F638	47M SMS 16V M FM5 TP5
		C352	0CN1030F678	0.01M 16V M Y TA26
		C354	0CN1030F678	0.01M 16V M Y TA26
		C355	0CE3346K638	0.33M SMS 50V M FM5 TP(5)
		C356	0CQ5631N509	0.056U 100V K POLY TP
		C4F1	0CX0100K608	1.0P 50V M SL TA(26)
		C4L1	0CQ8231N409	0.082U 100V J POLY TP
		C4L2	0CQ1521N409	0.0015U 100V J POLY TP
		C401	0CE4766F638	47M SMS 16V M FM5 TP5
		C402	0CQ2231N409	0.022U 100V J POLY TP
		C404	0CN3910K518	390P 50V K B TA26
		C406	0CE1066H638	10M SMS 25V M FM5 TP
		C407	0CQ1031N409	0.01U 100V J POLY TP
		C408	0CE1066H638	10M SMS 25V M FM5 TP
		C409	0CE3364F638	33M SRA 16V M FM5 TP(5)
		C410	0CQ1021N409	0.001U 100V J POLY TP
		C411	0CE1066H638	10M SMS 25V M FM5 TP
		C412	0CE1066H638	10M SMS 25V M FM5 TP
		C413	0CE4766F638	47M SMS 16V M FM5 TP5
		C415	0CE4766F638	47M SMS 16V M FM5 TP5
		C416	0CE1066H638	10M SMS 25V M FM5 TP
		C417	0CQ1231N409	0.012U 100V J POLY TP
		C419	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C420	0CQ1221N409	0.0012U 100V J POLY TP
		C421	0CE1066H638	10M SMS 25V M FM5 TP
		C422	0CE1066H638	10M SMS 25V M FM5 TP
		C423	0CE1066H638	10M SMS 25V M FM5 TP
		C426	0CQ1031N409	0.01U 100V J POLY TP
		C427	0CQ1031N409	0.01U 100V J POLY TP
		C428	0CQ6831N409	0.068U 100V J POLY TP
		C430	0CN2210K518	220P 50V K B TA26
		C431	0CQ2231N409	0.022U 100V J POLY TP
		C432	0CE4766F638	47M SMS 16V M FM5 TP5
		C433	0CE2266F638	22M SMS 16V M FM5 TP5
		C435	0CE2246K638	0.22M SMS 50V M FM5 TP(5)
		C501	0CE2266F636	22M SMS 16V M FM5 BP TP(D)
		C502	0CN1020K518	1000P 50V K B TA26
		C503	0CN1020K518	1000P 50V K B TA26
		C504	0CN2230H948	0.022M 25V Z F TA26
		C505	0CN2230H948	0.022M 25V Z F TA26
		C506	0CN2230H948	0.022M 25V Z F TA26
		C507	0CN1030F678	0.01M 16V M Y TA26
		C508	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C509	0CN1030F678	0.01M 16V M Y TA26
		C510	0CN1030F678	0.01M 16V M Y TA26
		C511	0CN1030F678	0.01M 16V M Y TA26
		C512	0CE4766F638	47M SMS 16V M FM5 TP5
		C513	0CE4766F638	47M SMS 16V M FM5 TP5
		C514	0CE4766F638	47M SMS 16V M FM5 TP5
		C515	0CE4766F638	47M SMS 16V M FM5 TP5
		C516	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C517	0CE4774F638	470M SRA 16V M FM5 TP(5)
		C601	624-070B	ACE CAP,AC310G473Z5R5 BULK
		C602	0CC2400K412	24P 50V J NPO F
		C603	0CC2400K412	24P 50V J NPO F
		C604	0CE2266F630	22M SMS 16V M FM5
		C605	0CE4766F630	47M SMS 16V M FM5
		C606	0CE4766F630	47M SMS 16V M FM5
		C607	0CN1030F678	0.01M 16V M Y TA26
		C608	0CE4746K630	0.47M SMS 50V M FM5
		C701	0CN1030F678	0.01M 16V M Y TA26
		C702	0CE4766F638	47M SMS 16V M FM5 TP5
		C703	0CN1030F678	0.01M 16V M Y TA26
		C706	0CX4700K408	47P 50V J SL TA26
		C707	0CX4700K408	47P 50V J SL TA26
		C708	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C709	0CE2256K638	2.2M SMS 50V M FM5 TP(5)
		C710	0CN3310K518	330P 50V K B TA26
		C711	0CN1030F678	0.01M 16V M Y TA26
		C712	0CN1030F678	0.01M 16V M Y TA26
		C713	0CE1076F638	100M SMS 16V M FM5 TP(5)
		C714	0CQ1031N409	0.01U 100V J POLY TP
		C715	0CN1810K518	180P 50V K B TA26
		C716	0CN1030F678	0.01M 16V M Y TA26
		C717	0CE1076F638	100M SMS 16V M FM5 TP(5)
		C718	0CE4766F638	47M SMS 16V M FM5 TP5
		C719	0CN1030F678	0.01M 16V M Y TA26
		C720	0CX3300K408	33P 50V J SL TA26
		C721	0CX2700K408	27P 50V J SL TA26
		C723	0CE2256K638	2.2M SMS 50V M FM5 TP(5)
		C724	0CE2256K638	2.2M SMS 50V M FM5 TP(5)
		C725	0CQ6821N409	0.0068U 100V J POLY TP
		C726	0CQ4721N409	0.0047U 100V J POLY TP
		C727	0CN1030F678	0.01M 16V M Y TA26
		C728	0CE4766F638	47M SMS 16V M FM5 TP5
		C729	0CN1030F678	0.01M 16V M Y TA26
		C730	0CE4766F638	47M SMS 16V M FM5 TP5
		C731	0CN4710K518	470P 50V K B TA26
		C732	0CN4710K518	470P 50V K B TA26
		C733	0CN4710K518	470P 50V K B TA26
		C735	0CE1066H638	10M SMS 25V M FM5 TP
		C736	0CE1066H638	10M SMS 25V M FM5 TP
		C737	0CQ8211N449	820P 100V J PYLN TP
		C738	0CN1030F678	0.01M 16V M Y TA26
		C739	0CE4766F638	47M SMS 16V M FM5 TP5
		C740	0CX4700K408	47P 50V J SL TA26
		C741	0CQ4731N409	0.047U 100V J POLY TP
		C901	0CN2230H948	0.022M 25V Z F TA26
		C902	0CE4766F638	47M SMS 16V M FM5 TP5
		C903	0CX4700K408	47P 50V J SL TA26
		C904	0CX2400K408	24P 50V J SL TA26
		C905	0CN1020K518	1000P 50V K B TA26
		C906	0CE1046K638	0.1M SMS 50V M FM5 TP(5)
		C907	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C908	0CE4766F638	47M SMS 16V M FM5 TP5
		C909	0CN2230H948	0.022M 25V Z F TA26
		C910	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C911	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C912	0CE1066H638	10M SMS 25V M FM5 TP
		C913	0CQ3321N409	0.0033U 100V J POLY TP
		C914	0CX1500K408	15P 50V J SL TA26
		C915	0CX2700K408	27P 50V J SL TA26
		C916	0CX3300K408	33P 50V J SL TA26
		C918	0CX3300K408	33P 50V J SL TA26
		C919	0CN1030F678	0.01M 16V M Y TA26
		C920	0CE2276F638	220U SMS 16V M FM5 TP(5)
		C922	0CQ6831N409	0.068U 100V J POLY TP
		C923	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C924	0CN1010K518	100P 50V K B TA26
		C925	0CQ2721N409	0.0027M 100V J POLY TP
		C926	0CQ1021N409	0.001U 100V J POLY TP
		C927	0CN2230H948	0.022M 25V Z F TA26
		C928	0CE4766F638	47M SMS 16V M FM5 TP5
		C929	0CN1030F678	0.01M 16V M Y TA26
		C930	0CN1030F678	0.01M 16V M Y TA26
		C931	0CE1066H638	10M SMS 25V M FM5 TP
		C932	0CN1030F678	0.01M 16V M Y TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
				DISPLAY TUBE
		DG601	514-024A	11BT-89GK SEJIN
				DELAY LINE
		DL301	617-022B	ADL-FE 2245E PAL ASAHI GLASS
				DIODE
		D001	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
*		D101	0DD402000AC	BRIDGE RBA-402 SANKEN
*		D102	0DD402000AC	BRIDGE RBA-402 SANKEN
		D109	0DD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D110	0DD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D111	0DD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D113	0DD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D114	0DD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D201	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D202	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D207	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D208	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D209	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D210	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D211	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D212	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D213	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D401	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D402	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D403	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D407	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D501	0DD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D502	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D503	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D504	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D601	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D602	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D603	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D604	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D605	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D606	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D607	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D608	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D609	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D610	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D613	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D615	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D618	0DD131000AA	1SS131
		D619	0DD131000AA	1SS131
		D623	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D624	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D903	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D904	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D905	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D906	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D907	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D908	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D909	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
				FILTER
*		FL101	616-004B	LINE 801-302-FD(BUJEON*
		FL301	616-817A	L/C CD0331 S/S C40P

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		FL401	616-069A	LPF 12KHZ 253AGGS-1066
		Z701	616-622A	SAW TSF5321 SECAM S SANYO
		Z702	616-036B	TRAP TPS5.5MB MURA
		Z703	616-038D	CERAMIC SFT5.5MA MURATA
		Z704	616-039G	CERAMIC CDA6.5MEZ1
		Z705	616-321B	SFE6.5MC MURATA
		Z706	616-341A	CERAMIC TPS6.5MB

FUSE

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		F001	616-087A	1.5MHZ HPF (DAISHIN)
*		F101	585-011A	T 500MA 250V S504
*	OR	F101	585-012A	T500MA,250V PAL (SOC)
*		F102	585-011H	T 2.5A, 250V S506
*		F103	585-011H	T 2.5A, 250V S506

IC

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		IC001	0IHI118019A	HA118019NT(PRE-AMP 4HD)
		IC101	0IMA780600A	AN7806 6V1AREG MATSUSHITA
		IC102	0IMA780600A	AN7806 6V1AREG MATSUSHITA
		IC201	0IHI497560A	HD49756NT(SERVO)
		IC202	0IRH728000B	BA728N(DUAL OP-AMP)SIP
		IC203	0IRH704800A	BA7048N(ENVLOPE-DETECT)
		IC301	669-073A	GSH-7505P(BU7505BK1)Y/C,GST
		IC302	0IRH702500A	BA7025L PAL/MESECAM SYNC DETE
		IC303	0IKK740100A	MSM7401RS 2H-DL PAL
		IC304	0IGS381600A	GL3816
	OR	IC304	0ISA701600A	LA7016 ANALOG SW
		IC401	0ISA729500A	LA7295 (1280 AUDIO)
		IC402	0ISA701600A	LA7016 ANALOG SW
		IC501	0IMI509630J	M50963-410FP(SYS,C40P)
		IC502	0IGS744500A	GL7445 (MOTOR DRIV-1CH) GSS
	OR	IC502	0ISA164100A	LB1641(1-CH)MOTOR DRIV SANYO
		IC503	0IMT523000B	PST-523G(3.3V) LOW MITUSMI
		IC601	0IMI381025Q	M38102M5-131SP(TIMER)C40P
	OR	IC602	0ICA240200A	CH24C02 EEP-ROM(2K CMOS)
		IC602	0IXI240200B	X24C02.8D EEP-ROM(2K CMOS)
		IC603	0IMT523000B	PST-523G(3.3V) LOW MITUSMI
		IC701	0ISA754500A	LA7545 (1280 T/IF)
		IC901	0IMI505560A	M50556-055SP(OSD 64CHAR)G41M
		IC902	0IJR222900A	NJM2229S SYNC SEPA (SIP PACK)
		IC903	0IJR224900A	NJM2249L S/W (8 PIN SIP)

LED

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		LD601	0DL162000AA	KLR162E (RD) KEC

COIL

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		L001	0LR1000K035	100M K 6X6 L5 TP
		L002	0LA0272K018	27M K 2.3X3.4 L5 TP
		L003	0LA0272K018	27M K 2.3X3.4 L5 TP
		L004	0LA0152K018	15M K 2.3X3.4 L5 TP
		L005	0LA1800K018	180M K 2.3X3.4 L5 TP
		L006	0LA0392K018	39M K 2.3X3.4 L5 TP
		L007	0LR1000K035	100M K 6X6 L5 TP
		L008	0LA0152K018	15M K 2.3X3.4 L5 TP
		L009	0LR1000K035	100M K 6X6 L5 TP
		L201	0LR1000K035	100M K 6X6 L5 TP
		L202	0LA0472K018	47M K 2.3X3.4 L5 TP
		L3A1	0LA0152K018	15M K 2.3X3.4 L5 TP
		L301	0LR1000K035	100M K 6X6 L5 TP
		L302	0LR1000K035	100M K 6X6 L5 TP

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		L303	0LA0682K018	68M K 2.3X3.4 L5 TP
		L304	0LA0562K018	56M K 2.3X3.4 L5 TP
		L305	0LR1000K035	100M K 6X6 L5 TP
		L306	0LA0331K018	3.3UH K 2.3X3.4 L5 TP
		L307	0LR1000K035	100M K 6X6 L5 TP
		L308	0LR1000K035	100M K 6X6 L5 TP
		L309	0LR1000K035	100M K 6X6 L5 TP
		L310	0LA0472K018	47M K 2.3X3.4 L5 TP
		L311	0LR1000K035	100M K 6X6 L5 TP
		L313	0LA0682K018	68M K 2.3X3.4 L5 TP
		L314	0LA0682K018	68M K 2.3X3.4 L5 TP
		L315	0LR1000K035	100M K 6X6 L5 TP
		L316	637-013B	PECK 6.80MH-J NYE
		L4F1	0LA0181K018	1.8M K 2.3X3.4 L5 TP
		L401	0LR1000K035	100M K 6X6 L5 TP
		L403	0LR1000K035	100M K 6X6 L5 TP
		L404	637-013C	PEAK 15.0MH-J NYE
		L407	0LR1000K035	100M K 6X6 L5 TP
		L4F2	0LA0181K018	1.8M K 2.3X3.4 L5 TP
		L4F3	0LA0181K018	1.8M K 2.3X3.4 L5 TP
		L501	0LR1000K035	100M K 6X6 L5 TP
		L601	0LR1000K530	100M K 6X6 F BULK
		L701	0LR1000K035	100M K 6X6 L5 TP
		L702	0LR0681K035	6.8M K 6X6 L5 TP
		L703	0LA0102K018	10M K 2.3X3.4 L5 TP
		L704	0LA0152K018	15M K 2.3X3.4 L5 TP
		L705	0LA0222K018	22M K 2.3X3.4 L5 TP
		L706	0LR1000K035	100M K 6X6 L5 TP
		L707	0LR1000K035	100M K 6X6 L5 TP
		L708	0LR1000K035	100M K 6X6 L5 TP
		L709	0LA0332K018	33M K 2.3X3.4 L5 TP
		L710	0LR1000K035	100M K 6X6 L5 TP
		L711	0LR1000K035	100M K 6X6 L5 TP
		L712	0LR1000K035	100M K 6X6 L5 TP
		L901	0LR1000K035	100M K 6X6 L5 TP
		L902	0LA0222K018	22M K 2.3X3.4 L5 TP
		L903	0LA0222K018	22M K 2.3X3.4 L5 TP
		L904	0LA0152K018	15M K 2.3X3.4 L5 TP
		L905	0LA0332K018	33M K 2.3X3.4 L5 TP
		L906	0LR1000K035	100M K 6X6 L5 TP
		L907	0LR1000K035	100M K 6X6 L5 TP
		T401	633-032C	BIAS-OSC(MISUMI) 70KHZ
		T701	633-021C	PIF(D/S)
		T702	633-042B	SIF DET COIL GHV-1245W

MODULATOR

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		MD701	592-907A	MDF33-UD3627 PAL-G/K MITSUMI

C.B.A(CIRCUIT BOARD ASSEMBLY)

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		PBA00	515-187A	PRE-AMP
		PBK00	515-421A	KEY-BOARD (R-C40P)
		PBM00	515-185W	MAIN (R-C40W)
		PBP00	515-184D	POWER (R-C40W,220V/50HZ)
		PBT00	515-188B	TIMER (R-C40W)

TRANSFORMER

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		PT101	641-033B	225V/240V/50.60HZ
	OR	PT101	641-333B	225V/240V/50.60HZ

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION

TRANSISTOR

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		Q001	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q002	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q003	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q004	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q005	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
		Q006	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q007	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q008	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q101	0TR141400AA	KTD1414 POWER (220 PACK) KEC
		Q103	0TR120300AB	KN1203=KRC1203=KRC103M(DEGI)K
		Q104	0TR220900AA	DEGI KN2209 FORMING KEC
		Q105	0TR966000AA	KTA966A-Y=KTC1273-Y KE
		Q106	0TR220900AA	DEGI KN2209 FORMING KEC
		Q107	0TR120300AB	KN1203=KRC1203=KRC103M(DEGI)K
		Q109	0TR223600AA	KTC2236A-Y=KTC3205Y KEC
		Q110	0TR141400AA	KTD1414 POWER (220 PACK) KEC
		Q201	0TR220309AA	KN2203=KRA2203=KRA103M TP KEC
		Q202	0TR220309AA	KN2203=KRA2203=KRA103M TP KEC
		Q203	0TR220309AA	KN2203=KRA2203=KRA103M TP KEC
		Q205	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q206	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q207	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q301	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q302	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q303	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q304	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q306	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
		Q307	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q308	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
		Q309	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q310	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q311	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q312	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
		Q401	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q402	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
		Q403	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q405	0TR223609AB	KTC2236A-Y=KTC3205Y TP KEC
		Q501	0TR120409AA	KN1204=KRC1204=KRC104M TP KEC
		Q502	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q503	0TR120409AA	KN1204=KRC1204=KRC104M TP KEC
		Q504	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q505	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q506	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q507	0TR223609AB	KTC2236A-Y=KTC3205Y TP KEC
		Q701	0TR388009AB	KTC388A-Y=KTC3197Y TP KEC
		Q705	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q706	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q707	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q708	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q709	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q710	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q711	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
		Q712	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q902	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q903	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q904	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q905	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q906	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q907	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q908	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q909	0TR220309AA	KN2203=KRA2203=KRA103M TP KEC

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		Q910	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q911	0TR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q912	0TR220309AA	KN2203=KRA2203=KRA103M TP KEC

REMOCON RECEIVER

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		RC601	668-226A	R/C RECEIVER(KTC.H=15) 34L

RESISTOR

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		R001	0RD1002F608	10K 1/6W 5 TA26
		R002	0RD1002F608	10K 1/6W 5 TA26
		R003	0RD1002F608	10K 1/6W 5 TA26
		R004	0RD1002F608	10K 1/6W 5 TA26
		R005	0RD1002F608	10K 1/6W 5 TA26
		R006	0RD1001F608	1.0K 1/6W 5 TA26
		R008	0RD5601F608	5.6K 1/6W 5 TA26
		R009	0RD2201F608	2.2K 1/6W 5 TA26
		R010	0RD3901F608	3.9K 1/6W 5 TA26
		R011	0RD8200F608	820 1/6W 5 TA26
		R012	0RD4700F608	470 1/6W 5 TA26
		R013	0RD5600F608	560 1/6W 5 TA26
		R014	0RD1201F608	1.2K 1/6W 5 TA26
		R015	0RD3903F608	390K 1/6W 5 TA26
		R016	0RD4703F608	470K 1/6W 5 TA26
		R017	0RD1202F608	12K 1/6W 5 TA26
		R018	0RD1002F608	10K 1/6W 5 TA26
		R019	0RD1002F608	10K 1/6W 5 TA26
		R020	0RD1201F608	1.2K 1/6W 5 TA26
		R021	0RD2201F608	2.2K 1/6W 5 TA26
		R022	0RD2201F608	2.2K 1/6W 5 TA26
		R023	0RD3900F608	390 1/6W 5 TA26
		R024	0RD8200F608	820 1/6W 5 TA26
		R025	0RD3900F608	390 1/6W 5 TA26
		R026	0RD1002F608	10K 1/6W 5 TA26
		R027	0RD1002F608	10K 1/6W 5 TA26
		R028	0RD1002F608	10K 1/6W 5 TA26
		R029	0RD1201F608	1.2K 1/6W 5 TA26
		R030	0RD1001F608	1.0K 1/6W 5 TA26
		R031	0RD0752F608	75 1/6W 5 TA26
		R032	0RD0752F608	75 1/6W 5 TA26
		R033	0RD1000F608	100 1/6W 5 TA26
		R034	0RD0822F608	82 1/6W 5 TA26
		R101	0RD8200F620	820 1/6W 5 M5
		R102	0RD1001F620	1.0K 1/6W 5 M5
		R103	0RD1001F620	1.0K 1/6W 5 M5
		R105	0RD4700F620	470 1/6W 5 M5
		R106	0RD8200F620	820 1/6W 5 M5
		R111	0RD1501F620	1.5K 1/6W 5 M5
		R112	0RD1801F620	1.8K 1/6W 5 M5
		R113	0RD1003F620	100K 1/6W 5 M5
		R201	0RD1502F608	15K 1/6W 5 TA26
		R202	0RD1201F608	1.2K 1/6W 5 TA26
		R203	0RD1203F608	120K 1/6W 5 TA26
		R204	0RD1001F608	1.0K 1/6W 5 TA26
		R205	0RD1202F608	12K 1/6W 5 TA26
		R206	0RD2201F608	2.2K 1/6W 5 TA26
		R207	0RD1802F608	18K 1/6W 5 TA26
		R208	0RD2201F608	2.2K 1/6W 5 TA26
		R209	0RD2201F608	2.2K 1/6W 5 TA26
		R210	0RD1502F608	15K 1/6W 5 TA26
		R212	0RD2703F608	270K 1/6W 5 TA26
		R213	0RD3901F608	3.9K 1/6W 5 TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		R214	0RD6802F608	68K 1/6W 5 TA26
		R215	0RD2702F608	27K 1/6W 5 TA26
		R216	0RD8203F608	820K 1/6W 5 TA26
		R217	0RD5603F608	560K 1/6W 5 TA26
		R218	0RD6803F608	680K 1/6W 5 TA26
		R219	0RD2702F608	27K 1/6W 5 TA26
		R220	0RD4702F608	47K 1/6W 5 TA26
		R221	0RD8201F608	8.2K 1/6W 5 TA26
		R222	0RD1003F608	100K 1/6W 5 TA26
		R223	0RD5602F608	56K 1/6W 5 TA26
		R224	0RD8202F608	82K 1/6W 5 TA26
		R226	0RD1503F608	150K 1/6W 5 TA26
		R227	0RD5601F608	5.6K 1/6W 5 TA26
		R228	0RD4701F608	4.7K 1/6W 5 TA26
		R229	0RD4700F608	470 1/6W 5 TA26
		R230	0RD4700F608	470 1/6W 5 TA26
		R231	0RD5601F608	5.6K 1/6W 5 TA26
		R232	0RD1001F608	1.0K 1/6W 5 TA26
		R233	0RD1202F608	12K 1/6W 5 TA26
		R234	0RD1004F608	1.0M 1/6W 5 TA26
		R235	0RD1203F608	120K 1/6W 5 TA26
		R236	0RD1803F608	180K 1/6W 5 TA26
		R238	0RD1001F608	1.0K 1/6W 5 TA26
		R239	0RD1501F608	1.5K 1/6W 5 TA26
		R240	0RD2201F608	2.2K 1/6W 5 TA26
		R241	0RD6801F608	6.8K 1/6W 5 TA26
		R242	0RD4701F608	4.7K 1/6W 5 TA26
		R243	0RD0101F608	1.0 1/6W 5 TA26
		R244	0RD0101F608	1.0 1/6W 5 TA26
		R245	0RD1801F608	1.8K 1/6W 5 TA26
		R246	0RD1003F608	100K 1/6W 5 TA26
		R247	0RD1002F608	10K 1/6W 5 TA26
		R248	0RD5601F608	5.6K 1/6W 5 TA26
		R249	0RD1001F608	1.0K 1/6W 5 TA26
		R250	0RD1501F608	1.5K 1/6W 5 TA26
		R251	0RD2201F608	2.2K 1/6W 5 TA26
		R252	0RD2702F608	27K 1/6W 5 TA26
		R253	0RD4701F608	4.7K 1/6W 5 TA26
		R254	0RD1002F608	10K 1/6W 5 TA26
		R301	0RD3301F608	3.3K 1/6W 5 TA26
		R302	0RD2701F608	2.7K 1/6W 5 TA26
		R303	0RD1002F608	10K 1/6W 5 TA26
		R304	0RD1002F608	10K 1/6W 5 TA26
		R305	0RD6800F608	680 1/6W 5 TA26
		R308	0RD1001F608	1.0K 1/6W 5 TA26
		R309	0RD1002F608	10K 1/6W 5 TA26
		R310	0RD1002F608	10K 1/6W 5 TA26
		R311	0RD3901F608	3.9K 1/6W 5 TA26
		R312	0RD4701F608	4.7K 1/6W 5 TA26
		R313	0RD5601F608	5.6K 1/6W 5 TA26
		R314	0RD1002F608	10K 1/6W 5 TA26
		R315	0RD8200F608	820 1/6W 5 TA26
		R316	0RD1001F608	1.0K 1/6W 5 TA26
		R317	0RD2700F608	270 1/6W 5 TA26
		R318	0RD2201F608	2.2K 1/6W 5 TA26
		R319	0RD3900F608	390 1/6W 5 TA26
		R320	0RD4701F608	4.7K 1/6W 5 TA26
		R321	0RD3301F608	3.3K 1/6W 5 TA26
		R323	0RD3300F608	330 1/6W 5 TA26
		R324	0RD0752F608	75 1/6W 5 TA26
		R325	0RD2700F608	270 1/6W 5 TA26
		R326	0RD3300F608	330 1/6W 5 TA26
		R327	0RD3900F608	390 1/6W 5 TA26
		R328	0RD4702F608	47K 1/6W 5 TA26
		R329	0RD1802F608	18K 1/6W 5 TA26
		R330	0RD1001F608	1.0K 1/6W 5 TA26
		R331	0RD1001F608	1.0K 1/6W 5 TA26
		R332	0RD1001F608	1.0K 1/6W 5 TA26
		R333	0RD1503F608	150K 1/6W 5 TA26
		R334	0RD0182F608	18 1/6W 5 TA26
		R335	0RD2201F608	2.2K 1/6W 5 TA26
		R336	0RD1001F608	1.0K 1/6W 5 TA26
		R337	0RD2202F608	22K 1/6W 5 TA26
		R338	0RD3900F608	390 1/6W 5 TA26
		R339	0RD0682F608	68 1/6W 5 TA26
		R340	0RD1201F608	1.2K 1/6W 5 TA26
		R342	0RD1001F608	1.0K 1/6W 5 TA26
		R343	0RD4700F608	470 1/6W 5 TA26
		R344	0RD2200F608	220 1/6W 5 TA26
		R345	0RD1001F608	1.0K 1/6W 5 TA26
		R346	0RD5601F608	5.6K 1/6W 5 TA26
		R347	0RD2201F608	2.2K 1/6W 5 TA26
		R4D01	0RD0102F608	10 1/6W 5 TA26
		R4L1	0RD3900F608	390 1/6W 5 TA26
		R402	0RD3303F608	330K 1/6W 5 TA26
		R403	0RD1202F608	12K 1/6W 5 TA26
		R404	0RD3902F608	39K 1/6W 5 TA26
		R405	0RD4701F608	4.7K 1/6W 5 TA26
		R406	0RD5603F608	560K 1/6W 5 TA26
		R407	0RD2702F608	27K 1/6W 5 TA26
		R408	0RD5602F608	56K 1/6W 5 TA26
		R409	0RD1002F608	10K 1/6W 5 TA26
		R410	0RD2702F608	27K 1/6W 5 TA26
		R411	0RD5600F608	560 1/6W 5 TA26
		R413	0RD2201F608	2.2K 1/6W 5 TA26
		R414	0RD1502F608	15K 1/6W 5 TA26
		R415	0RD2201F608	2.2K 1/6W 5 TA26
		R416	0RD5601F608	5.6K 1/6W 5 TA26
		R417	0RD4702F608	47K 1/6W 5 TA26
		R418	0RD4702F608	47K 1/6W 5 TA26
		R419	0RD6800F608	680 1/6W 5 TA26
		R420	0RD1801F608	1.8K 1/6W 5 TA26
		R421	0RD1200F608	120 1/6W 5 TA26
		R422	0RD8200F608	820 1/6W 5 TA26
		R423	0RD2200F608	220 1/6W 5 TA26
		R424	0RD2201F608	2.2K 1/6W 5 TA26
		R425	0RD2201F608	2.2K 1/6W 5 TA26
		R426	0RD0472F608	47 1/6W 5 TA26
		R427	0RD0102F608	10 1/6W 5 TA26
		R428	0RD0102F608	10 1/6W 5 TA26
		R429	0RD2702F608	27K 1/6W 5 TA26
		R433	0RD1500F608	150 1/6W 5 TA26
		R501	0RD4701F608	4.7K 1/6W 5 TA26
		R502	0RD1802F608	18K 1/6W 5 TA26
		R503	0RD1002F608	10K 1/6W 5 TA26
		R504	0RD1002F608	10K 1/6W 5 TA26
		R505	0RD1003F608	100K 1/6W 5 TA26
		R506	0RD1003F608	100K 1/6W 5 TA26
		R507	0RD1003F608	100K 1/6W 5 TA26
		R508	0RD4701F608	4.7K 1/6W 5 TA26
		R509	0RD4701F608	4.7K 1/6W 5 TA26
		R510	0RD1003F608	100K 1/6W 5 TA26
		R511	0RD1003F608	100K 1/6W 5 TA26
		R512	0RD4701F608	4.7K 1/6W 5 TA26
		R513	0RD1802F608	18K 1/6W 5 TA26
		R514	0RD4701F608	4.7K 1/6W 5 TA26
		R515	0RD1004F608	1.0M 1/6W 5 TA26
		R516	0RD4701F608	4.7K 1/6W 5 TA26
		R517	0RD4701F608	4.7K 1/6W 5 TA26
		R518	0RD4701F608	4.7K 1/6W 5 TA26
		R519	0RD4701F608	4.7K 1/6W 5 TA26
		R520	0RD4701F608	4.7K 1/6W 5 TA26
		R521	0RD4701F608	4.7K 1/6W 5 TA26
		R522	0RD4701F608	4.7K 1/6W 5 TA26
		R523	0RD4701F608	4.7K 1/6W 5 TA26
		R524	0RD4701F608	4.7K 1/6W 5 TA26
		R525	0RD4701F608	4.7K 1/6W 5 TA26
		R526	0RD4701F608	4.7K 1/6W 5 TA26
		R527	0RD4701F608	4.7K 1/6W 5 TA26
		R528	0RD4701F608	4.7K 1/6W 5 TA26
		R529	0RD4701F608	4.7K 1/6W 5 TA26
		R530	0RD4701F608	4.7K 1/6W 5 TA26
		R531	0RD4701F608	4.7K 1/6W 5 TA26
		R532	0RD4701F608	4.7K 1/6W 5 TA26
		R533	0RD4701F608	4.7K 1/6W 5 TA26
		R534	0RD4701F608	4.7K 1/6W 5 TA26
		R535	0RD4700F608	470 1/6W 5 TA26
		R536	0RD4701F608	4.7K 1/6W 5 TA26
		R537	0RD4701F608	4.7K 1/6W 5 TA26
		R538	0RD4701F608	4.7K 1/6W 5 TA26
		R539	0RD2201F608	2.2K 1/6W 5 TA26
		R540	0RD4701F608	4.7K 1/6W 5 TA26
		R541	0RD4701F608	4.7K 1/6W 5 TA26
		R542	0RD4701F608	4.7K 1/6W 5 TA26
		R601	0RD1004F608	1.0M 1/6W 5 TA26
		R602	0RD1002F608	10K 1/6W 5 TA26
		R603	0RD4704F608	4.7M 1/6W 5 TA26
		R604	0RD6802F608	68K 1/6W 5 TA26
		R605	0RD6802F608	68K 1/6W 5 TA26
		R606	0RD6802F608	68K 1/6W 5 TA26
		R607	0RD6802F608	68K 1/6W 5 TA26
		R608	0RD4700F608	470 1/6W 5 TA26
		R609	0RD1000F608	100 1/6W 5 TA26
		R610	0RD1002F608	10K 1/6W 5 TA26
		R612	0RD1002F608	10K 1/6W 5 TA26
		R613	0RD1002F608	10K 1/6W 5 TA26
		R616	0RD1002F608	10K 1/6W 5 TA26
		R618	0RD1002F608	10K 1/6W 5 TA26
		R619	0RD1002F608	10K 1/6W 5 TA26
		R620	0RD1001F608	1.0K 1/6W 5 TA26
		R621	0RD1001F608	1.0K 1/6W 5 TA26
		R622	0RD1001F608	1.0K 1/6W 5 TA26
		R701	0RD0822F608	82 1/6W 5 TA26
		R702	0RD2201F608	2.2K 1/6W 5 TA26
		R703	0RD4701F608	4.7K 1/6W 5 TA26
		R704	0RD1201F608	1.2K 1/6W 5 TA26
		R705	0RD5600F608	560 1/6W 5 TA26
		R706	0RD0682F608	68 1/6W 5 TA26
		R707	0RD3301F608	3.3K 1/6W 5 TA26
		R708	0RD2700F608	270 1/6W 5 TA26
		R709	0RD3300F608	330 1/6W 5 TA26
		R710	0RD2201F608	2.2K 1/6W 5 TA26
		R711	0RD4701F608	4.7K 1/6W 5 TA26
		R712	0RD1502F608	15K 1/6W 5 TA26
		R713	0RD6801F608	6.8K 1/6W 5 TA26
		R714	0RD5601F608	5.6K 1/6W 5 TA26
		R715	0RD8200F608	820 1/6W 5 TA26
		R716	0RD3300F608	330 1/6W 5 TA26
		R717	0RD2200F608	220 1/6W 5 TA26
		R718	0RD1801F608	1.8K 1/6W 5 TA26
		R719	0RD2701F608	2.7K 1/6W 5 TA26
		R720	0RD1500F608	150 1/6W 5 TA26
		R721	0RD2200F608	220 1/6W 5 TA26
		R722	0RD2200F608	220 1/6W 5 TA26
		R723	0RD5601F608	5.6K 1/6W 5 TA26
		R724	0RD1001F608	1.0K 1/6W 5 TA26
		R725	0RD1000F608	100 1/6W 5 TA26
		R726	0RD2202F608	22K 1/6W 5 TA26
		R727	0RD1203F608	120K 1/6W 5 TA26
		R728	0RD5601F608	5.6K 1/6W 5 TA26
		R729	0RD1203F608	120K 1/6W 5 TA26
		R730	0RD5601F608	5.6K 1/6W 5 TA26
		R734	0RD5601F608	5.6K 1/6W 5 TA26
		R735	0RD5601F608	5.6K 1/6W 5 TA26
		R736	0RD5601F608	5.6K 1/6W 5 TA26
		R751	0RD5601F608	5.6K 1/6W 5 TA26
		R901	0RD3301F608	3.3K 1/6W 5 TA26
		R902	0RD3301F608	3.3K 1/6W 5 TA26
		R903	0RD5601F608	5.6K 1/6W 5 TA26
		R904	0RD1001F608	1.0K 1/6W 5 TA26
		R908	0RD1002F608	10K 1/6W 5 TA26
		R909	0RD3301F608	3.3K 1/6W 5 TA26
		R910	0RD1802F608	18K 1/6W 5 TA26
		R911	0RD1001F608	1.0K 1/6W 5 TA26
		R912	0RD1001F608	1.0K 1/6W 5 TA26
		R913	0RD5601F608	5.6K 1/6W 5 TA26
		R914	0RD3302F608	33K 1/6W 5 TA26
		R915	0RD1001F608	1.0K 1/6W 5 TA26
		R916	0RD1202F608	12K 1/6W 5 TA26
		R917	0RD3900F608	390 1/6W 5 TA26
		R918	0RD3302F608	33K 1/6W 5 TA26
		R919	0RD5603F608	560K 1/6W 5 TA26
		R920	0RD1501F608	1.5K 1/6W 5 TA26
		R921	0RD5602F608	56K 1/6W 5 TA26
		R922	0RD1002F608	10K 1/6W 5 TA26
		R923	0RD1000F608	100 1/6W 5 TA26
		R924	0RD2202F608	22K 1/6W 5 TA26
		R925	0RD4701F608	4.7K 1/6W 5 TA26
		R926	0RD4701F608	4.7K 1/6W 5 TA26
		R927	0RD4701F608	4.7K 1/6W 5 TA26
		R929	0RD5602F608	56K 1/6W 5 TA26
		R930	0RD6801F608	6.8K 1/6W 5 TA26
		R931	0RD5602F608	56K 1/6W 5 TA26
		R932	0RD5601F608	5.6K 1/6W 5 TA26
		R933	0RD4702F608	47K 1/6W 5 TA26
		R934	0RD6802F608	68K 1/6W 5 TA26
		R936	0RD1000F608	100 1/6W 5 TA26
		R937	0RD1002F608	10K 1/6W 5 TA26
		R938	0RD2200F608	220 1/6W 5 TA26

SWITCH

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		SW601	556-148A	TACT KPT-1105BP (H=9.5)
		SW602	556-148A	TACT KPT-1105BP (H=9.5)
		SW603	556-148A	TACT KPT-1105BP (H=9.5)
		SW604	556-148A	TACT KPT-1105BP (H=9.5)
		SW605	556-148A	TACT KPT-1105BP (H=9.5)
		SW606	556-148A	TACT KPT-1105BP (H=9.5)
		SW607	556-148A	TACT KPT-1105BP (H=9.5)
		SW608	556-148A	TACT KPT-1105BP (H=9.5)
		SW609	556-148A	TACT KPT-1105BP (H=9.5)
		SW610	556-148A	TACT KPT-1105BP (H=9.5)
		SW611	556-148A	TACT KPT-1105BP (H=9.5)
		SW612	556-148A	TACT KPT-1105BP (H=9.5)

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		SW613	556-148A	TACT KPT-1105BP (H=9.5)
		SW614	556-148A	TACT KPT-1105BP (H=9.5)
		SW615	556-148A	TACT KPT-1105BP (H=9.5)
		SW616	556-148A	TACT KPT-1105BP (H=9.5)
		SW617	556-148A	TACT KPT-1105BP (H=9.5)
		SW618	556-148A	TACT KPT-1105BP (H=9.5)
		SW619	556-148A	TACT KPT-1105BP (H=9.5)
		SW622	556-148A	TACT KPT-1105BP (H=9.5)
		SW623	556-148A	TACT KPT-1105BP (H=9.5)
		SW624	556-148A	TACT KPT-1105BP (H=9.5)
		SW625	556-148A	TACT KPT-1105BP (H=9.5)
		SW626	556-148A	TACT KPT-1105BP (H=9.5)
		SW630	556-023K	SLIDE SSJ-822 (L=12)
		SW631	556-023K	SLIDE SSJ-822 (L=12)

TUNER

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		TU701	521-402A	ENV-57862G3 FS/PLL HYPER MATS

VARIABLE RESISTOR

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		VR201	613-028J	EVN-D4AA001B15 (100K)
		VR301	613-0247	RH0615C-102B 0.1W GAE
	OR	VR301	613-0287	EVN-D4AA001B13 (1K)
		VR302	613-024D	RH0615C-103B 0.1W GAE
	OR	VR302	613-028D	EVN-D4AA001B14 (10K)
		VR303	613-0247	RH0615C-102B 0.1W GAE
	OR	VR303	613-0287	EVN-D4AA001B13 (1K)
		VR401	613-028F	EVN-D4AA001BE4 (22K)
		VR402	613-028L	EVN-D4AA001BE5 (220K)
		VR601	611-012G	VR, ROTARY RK09K113-20KB(FLAT
		VR701	613-028G	EVN-D4AA001BY4 (33K)
		VR901	613-028G	EVN-D4AA001BY4 (33K)

CRYSTAL

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		X301	616-323A	SFE4.25MBF (MURATA)
		X501	618-013B	CST6.0MGW-TF01S TAPING MURATA
		X601	529-018A	CERAMIC RESONATOR-4.0MHZ C=30
		X602	529-001A	32.768KHZ
		X901	529-020K	17.734476MHZ 30PPM NO-TU L=4.
		X902	529-019A	CSB500F-9 MURATA

ZENER DIODE

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		ZD101	0DZ130000BA	UZ-13BH UNIZON
		ZD103	0DZ160009AB	UZ-16 BL 0.5W TP
		ZD104	0DZ130009CC	UZ-13BL 0.5W TP
		ZD106	0DZ330009AB	MTZ-33C TP
		ZD107	0DZ330009AB	MTZ-33C TP
		ZD108	0DZ560009CA	MTZ5.6B TP ROHM-K
		ZD501	0DZ820009BB	UZ8.2BSC 5M/M TP UNIZON
		ZD502	0DZ100009AA	MTZ10B MINI TP ROHM-K
		ZD503	0DZ100009AA	MTZ10B MINI TP ROHM-K